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VACCINATION. WHAT TO DO: HOW TO DO IT: WHAT TO EXPECT.*

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Simple as the operation of vaccination seems to be, it requires considerable technical skill in its perfect performance, as a matter of fact, and an amount of theoretical and practical knowledge of the subject which is rarely appreciated.

Vaccination is a surgical operation, apparently insignificant in practice but extremely important in its results. Well performed, it saves many lives, prevents much suffering and sorrow; but indifferently performed, it either causes unnecessary pain and suffering or may lull one with a false sense of security as dangerous to society as the anti-vaccinationist.

Failure of active vaccine, properly inoculated, only means that the person vaccinated is at the time immune, but gives absolutely no information as to the condition a few months later. Susceptibility to vaccination frequently returns within one year of the time of a successful vaccination. Even small-pox does not always confer permanent immunity.

An infant should be vaccinated before it begins to be exposed to contagion outside its own home. The fifth month is the best time, as then the digestive habits are more settled.

Every child should be vaccinated during its first year of life and should be revaccinated before beginning school life with its possibility of exposure to infection. Every person, at whatever age, should be vaccinated at a time of possible exposure to small-pox unless he has been successfully vaccinated within three or four months.

To insure absolute immunity an individual must be revaccinated repeatedly.

Vaccinia is an infectious disease, characterized by local (and sometimes by general) symptoms, which result from the introduction into the blood of man of the lymph from the vesicle of kine-box, or small-pox as occurring in cattle. Persons successfully vaccinated are immune from small-pox. The local reaction of vaccinia is the vesicle, the contents of which, when inoculated into another person, may produce the same disease (vaccinia), conferring immunity from small-pox.

The English believe that vaccinia is small-pox, modified by transmission through the cow; this view is probably correct—that vaccinia is small-pox modified by passing through bovines. The French, however, hold that vaccinia is a distinct clinical entity, altogether unlike small-pox. This is neither here nor there, however. For our present purposes it is enough to know that a successful vaccination protects against small-pox, for a varying length of time.

Some people are rendered immune for life; in others immunity exists only for two or three years. The test is revaccination, which if successful, shows that the person was not immune, although if the vaccination is not successful, it does not follow that the person is immune. Everything depends upon the potency of the vaccine and the technique of its administration.

Laboratories exist in this country for the propogation of bovine vaccine or lymph, where under the most perfect sanitary precautions, as regulated by the federal government, inoculation is practiced upon the abdomen and inner surface of the thighs of young heifers; whence the lymph is collected and prepared for use. The vaccine is

*Read at the 54th Annual Meeting, May 17, 1904.

subjected to bacteriologic examination to insure the absence of pathogenic micro-organisms, and also to a clinical test to determine its potency. The most modern manufacturers select samples at random from each lot of vaccine ready for the market, with each one of which three inoculations are made. If typical vaccinia is developed from at least thirteen out of fifteen inoculations, the manufacturers market that particular lot of vaccine from which the samples were taken—otherwise the entire lot is rejected.

The manufacturers of biological products, such as vaccine, are now under the supervision of the United States Government, which has promulgated rules to be followed before a license to manufacture and market is issued by the government, without which no one can engage in the business. As a result of these extra-ordinary precautions, a vaccine which is potent, reliable and free from septic contamination is available to all physicians.

Do not fail to vaccinate, or if your patients have been vaccinated some years since, to revaccinate them. Revaccination is the sign of an enlightened profession. Do it as a duty to yourself and others.

The operation of vaccination is variously performed. With a large experience, I have the temerity to state that there is one method only, which should be followed. In the first place, I absolutely taboo the use of all antiseptic substances of any kind whatsoever. Mild soap and boiled water, and a clean cloth or gauze sponge are all one needs or should use in preparing the site of inoculation. The point of election, through custom, is the insertion of the left deltoid muscle, although for cosmetic reasons, I always suggest the vaccination of young girls on the leg, just below the knee.

My habit is to gently scrub the site of the operation with soap and water, using the gauze sponge. I rinse the soap off with another gauze sponge saturated with boiled water and with a third sponge wipe the skin dry. Preferring the liquid vaccine, which is marketed in little capillary tubes, I express a drop from one of them onto the arm. The instrument I like above all others is a large-sized, common sewing-needle, the point of which has been broken off and the resulting sharp edges dulled by rubbing over a file or a piece of emery paper, and sterilized in the flame of an alcohol lamp or a gas jet. The needle is held firmly between the thumb and finger; the second, third and fourth fingers resting against the arm or leg to support the hand and the left hand being used to firmly grasp the limb to make a little counter pressure.

Then, with a rotary motion, I rub the vaccine into and through the skin with the needle, working over a surface *not to exceed* one-eighth inch in diameter.

The smallness of the area inoculated has an important bearing on complications. The resulting vesicle is always larger than the inoculation and the smaller the vesicle, the less probability that it will be injured, that the crust will be disturbed and that infection will be permitted. Also, the smaller the original area, the less the possibility of introducing extraneous infections. A large pinhead represents the typical size of inoculation and it should, at least, always be less than one-eighth of an inch square.

Simple methods are usually the best and vaccination is no exception to the rule. Unless I am much mistaken, all the manufacturers of vaccine now place a large needle in each package of capillary tubes—a tacit recognition of the correctness of my position.

It takes somewhat longer to apply this method successfully, as prolonged friction is desirable to insure inoculation, but the results are just as certain and far more satisfactory.

Scarification, making half-dozen lines crossed at right angles with another half-dozen; using a sharp, pointed needle, a scalpel, or scraping the skin with a scalpel until the cuticle is removed, are the commonest methods, but they are barbarous, in my opinion. Frightening children and the ignorant, they are also painful methods, tend to cause unnecessarily large scars, offer a large field for the introduction of extraneous

substances and do not confer immunity in proportion to their size.

If these reasons are not enough, we may add that it is a disadvantage to have the field of operation bleed or exude much serum, as this interferes, through coagulation, with absorption. The procedure which some physicians indulge in, of puncturing the skin obliquely and working the lymph into these punctures, I also condemn, being unnecessarily painful.

Owing to its hygroscopic nature, glycerinated virus dries very slowly and the clothing should not be replaced until the vaccine has thoroughly dried. If the sleeve or stocking be replaced before the lymph is dry, perchance it is wiped off and no result follows. Antiseptic dressings should never be used. In fact, no dressing at all is needed except where there is danger of infection, from the environment or the personal uncleanliness of the patient.

In accordance with the regulations, I vaccinated every recruit for the United States Army, while an examining surgeon in an army recruiting station, and while I would not have done it anyway, it gives me pleasure to state that the service regulations absolutely prohibit the use of any dressing of the primary wound of vaccination.

There are, however, a variety of so-called shields on the market the object of which is to allow the restoration of the clothing before the glycerinated lymph is dried.

A good style of shield is shown in the accompanying photograph. (No. 1.)

It is nothing but a light piece of colorless, transparent celluloid, two and three-fourths inches in diameter, round in outline, slightly bent into cup-shape to fit the arm and pierced by a few holes allowing circulation of air. In either end longitudinal slots are provided allowing a narrow piece of adhesive plaster to be drawn through to partly encircle the arm for the purpose of holding the shield in place.

Pieces of adhesive plaster are used instead of tape as the latter, unless very carefully applied and frequently examined, becomes tight, owing to the swelling of the arm, and restricts the circulation in a harmful manner. Narrow strips of adhesive plaster which encircle the arm part of the way only are free from this objection.

Sometimes a shield may be used to protect a sensitive vesicle. A good rule to follow is to only use a shield during the two or three days when the inflammation is at its height. If the vesicle is injured or the crust disturbed, the treatment should be surgical and a dressing applied such as would be applied to the same wound if it were not the result of vaccination. Such treatment does not in the least lessen the immunity given by the vaccination.

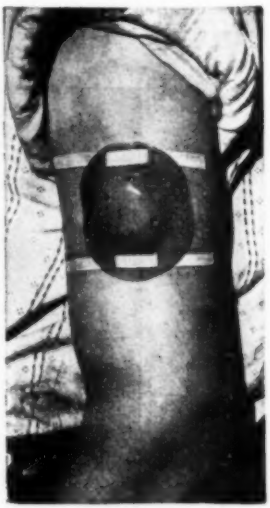

FIGURE 1.

It is almost a universal practice to use vaccine lymph taken from the cow, although now and then some sadly benighted individual will use human lymph, from a person having vaccine disease—a most reprehensible practice. I believe I know of two cases of syphilis which were conferred upon patients by the attending physician through this very act.

The chief reason for using bovine lymph is that the danger of communicating other affections, as syphilis and tuberculosis, is thereby greatly lessened. In addition, there is good reason for believing that immunity is more certainly secured through bovine than through human lymph.

Not many physicians know what a true vaccine vesicle looks like although it is the only reliable indication that the vaccine has taken; there is absolutely no other proof for or against the vaccine.

I show you a photograph (No. 2) of two typical, uninfected vesicles. The case was that of a young man, twenty years of age, who was *properly* vaccinated with glycerinated vaccine contained in small capillary tubes. The photograph was made eight days after inoculation. It may be asked whether two simultaneous inoculations are necessary and the answer is "no." One *typical* uninfected vesicle is as good as a dozen. The two inoculations in this case were made from the vaccine in one tube solely to make assurance doubly sure, but the second was not necessary at all.

Don't accept the word of the patient or the parent as to the success or failure of the vaccination. You, yourself, must examine the case and if you find a typical vesicle you may assure your patient of protection against small pox. Don't be in a hurry about passing judgment on a take. Sometimes the vesicles are delayed in their development.

The period of incubation is subject to great variation. Its normal duration is three or four days. It may appear on the second day. In other cases the period of incubation is unduly prolonged, instances being recorded in which the papule did not begin to show itself until the thirteenth day.

In many cases the physician is led to believe that the vaccination has failed and has revaccinated and suffered the embarrassment of seeing the synchronous development of two vesicles. In other cases, no apparent reaction having taken place in seven or eight days, revaccination has been done with another vaccine and in due course of time typical vesicles result. In this case the physician does not know whether the successful result was due to the first or second inoculation and there is no way of telling. The umbilicated vesicle which is the sole proof of successful vaccination may appear anywhere from the seventh to the fourteenth day.

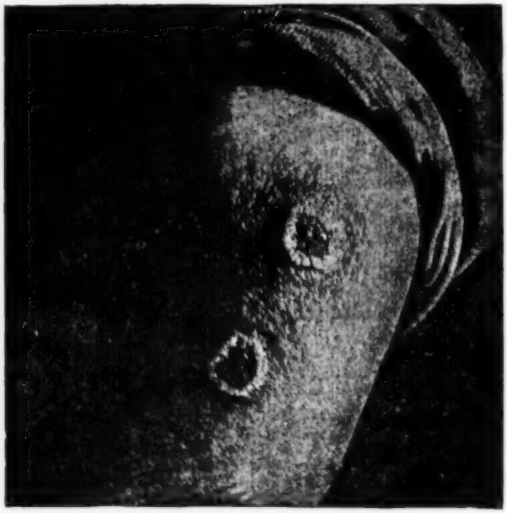

FIGURE 2.

The progress of the typical vesicle, according to the books, is described as follows: On the third or fourth day after the vaccination a faint redness appears, which greatly increases while a reddish papule is formed

which varies in size according to the extent of the abrasion. On the fifth day the lesion begins to assume a vesicular condition. The vesicle greatly increases in size, the contained lymph being at first thin and transparent. On the eighth to the fourteenth day the vesicle reaches its greatest perfection. It is then elevated above the level of the skin. Even in the early stages of its development it has a distinctly umbilicated form. Around the vesicle there is an inflamed area of greater or less extent which is called the areola. During the ninth or tenth day the redness increases, the inflamed skin becomse tender and the neighboring lymphatic glands frequently become enlarged and painful. Sometimes mild constitutional symptoms appear; slight chills, a temperature of one or two degrees, malais, anorexia, etc. On the eleventh to the fourteenth day the vesicle begins to fade, desiccation appears and from the fifteenth day on the desiccation is usually completed, although the crust does not fall off until the third and sometimes the fourth week.

On the site of the crust is found the scar, which is at first red, but in the course of some months becomes paler and finally becomes distinctly white. It is pitted and not infrequently presents radiating bands or stria of cicatricial tissue. This is the picture painted by the text-books, but it is by no means the invariable rule, for in this as in every other disease, each individual is a case by itself.

FIGURE 3.

Many patients pass through the regular course of vaccinia without any apparent systemic disturbance. Occasionally a macular eruption and bearing great similarity to measles may appear.

There are a few cases recorded of psychical disturbance seemingly due to vaccination.

Regis reports three cases in previously healthy individuals, two in adults and one in a child three years old: Delirium came on with the inflammatory stage and lasted from two to three days, subsiding with the occurrence of suppuration.

Pure vaccine should produce only a mild reaction. Violent symptoms, either local or constitutional, invariably mean infection, either from the vaccine itself, from carelessness in the operation or from infection of the wound after vaccination.

A hole in a man's arm half an inch deep, or a scar two inches in diameter proves only that infection, more or less serious, has occurred and does not afford any immunity whatever or protect against small pox. On the other hand, Jenner himself declared that a single vesicle imparted a full measure of protection.

Unfavorable results of vaccination are caused by a lack of skill or carelessness on the part of the vaccinator, or by not taking the proper aseptic precautions in this, the same as in any other surgical operation. No unfavorable results have ever been noticed when vaccinating with perfectly pure lymph, on an arm previously washed with soap and water and which had not subsequent to the vaccination been infected from outside sources. Negative results of vaccination are caused by carelessness or lack of skill on the part of the vaccinator or by inert lymph.

There is no such thing as non-susceptibility to vaccine.

Failure to obtain good results with vaccine is very frequently due to the deteriorating influence of heat or cold or strong light while in storage. If vaccine is exposed to freezing temperatures or excessive heat or strong light it may be rendered inert and failing the physician in his hour of need, be the means of causing an unjust reflection upon the product or upon the operator or upon the therapy involved.

The manufacturers of vaccine invariably do their best to put out perfectly pure active vaccine. As a rule, a physician does his best to vaccinate properly. Given a pure, potent vaccine and a careful physician, but a careless or indifferent druggist who does not know how to store vaccine, the chances are in favor of negative results. It may not be amiss to digress long enough to give a few simple rules for storing vaccine which should invariably be observed if the product is to reach the physician in the same good condition that it left the laboratory.

Rule 1. Never store vaccine near a stove, radiator, hot air register, or steam pipe nor on an upper shelf in a warm room nor where strong light will fall upon it.

Rule 2. Place the packages of vaccine on a layer of cotton or other soft material in a clean, dry, glass jar, closed securely and placed in the ice box, but do not let it touch the ice.

Rule 3. If an ice box be not available, select a cool, dry place where the temperature does not rise above 60° F. or fall below 40° F.

The time of life of vaccine when kept in the dark, at a constant temperature of about 45° F. is exceedingly variable and all the causes of variability are not known, but the vaccine may be expected to continue active under these conditions at least three months. Sometimes virus originally active has failed within a few weeks after collection, but such failures are quite rare.

The question of the action of glycerin on vaccine lymph is a perplexing one and to a great extent unsettled. The primary purpose of adding glycerin to vaccine is to kill or attenuate the growth of the pyogenic organisms contaminating all vaccine as it comes from the animal. Vaccine without glycerin is very likely to contain so great a number of bacteria as to cause inflammatory reactions of such severity that an ugly ulcer with a great amount of swelling and pain may result without any immunity being conferred whatever. An examination of the various reports which have appeared from time to time in the medical periodicals shows that it is impossible to state positively whether the diminished potency of vaccine as it is noticed from month to month is due to the gradual attenuation of the vaccine organism because of the addition of glycerin or whether it is an inherent property of the vaccine itself. Certain

it is that it has always been noticed that vaccine without glycerin gradually loses its activity and the same holds true with glycerinated vaccine. The results obtained from the use of glycerinated vaccine are much more satisfactory than those obtained from the use of vaccine which does not contain glycerin.

The whole question is so much involved by the contentions of various observers that it is well nigh impossible to make positive statements on the subject. Efforts have been made to substitute solutions of Potassium cyanide and Chloroform for the glycerin, but while the laboratory experiments are encouraging, sufficient progress has not yet been made to warrant definite statements as to their value.

For the benefit of those who do not know but may be curious to learn how vaccine lymph is propogated, I will give a brief outline of the process which is now in quite general use in this country and which has received the approbation of the United States Government officials. Healthy heifers about eighteen months old, or calves from one to three months old, are purchased and sent to the isolation stable. The animal is first carefully examined by a competent veterinarian for any evidence of disease, internal or external; a small ring-worm being enough to condemn it. The tuberculin test is applied in every case and any animal which exhibits a suspicious rise of temperature is rejected. The mallein test is applied and any animal in which there is the slightest suspicion of glanders is also thrown out. When the animal is finally pronounced to be acceptable it is taken into the preparatory room and scrubbed from head to foot with warm water and soap. It then passes into the operating room, which is to all intents and purposes similar to the best operating rooms in the best hospitals. Here, with the aid of convenient apparatus, the animal is placed upon its back on a table, the abdominal surface thoroughly washed, lathered and shaved. Then, after a final washing with sterilized water, it is ready for scarification, which is performed with sterilized instruments in such a manner that vesicles and not scars will form when the seed is inoculated.

The seed vaccine is then applied, thoroughly rubbed in and permitted to dry. The field of operation is either left intact or covered with a protective bandage. The animal then passes into the propagating room where it is kept until the ripening process is complete. During the stay in this room all excreta are instantly removed by men who are constantly on hand for this purpose. When the vaccine vesicles are ripe, the animal must once more submit to a scrubbing like the first and then again enter the operating room. The dressing, if any, is removed and the field of operation is cleansed with sterile water. The pulp of the vaccine vesicles is carefully collected with sterile curettes and placed in sterile containers. After the animal has returned to its normal condition by reason of the wounds healing and the hair growing out, it is disposed of according to the exigencies of the situation.

The vaccine is taken from the operating room to the laboratory and is run through sterilized glass grinders until a homogeneous mixture is obtained, the glycerin being added during this process. The vaccine is then examined bacteriologically, by placing samples of it upon various culture media which will insure the growth of germs if any are present. This test must give negative results so far as pathogenic germs are concerned. The presence of a few benign bacteria will not invalidate it. Injections into guinea-pigs and white mice are also made to definitely establish that no pathogenic germs are present. The so-called physiologic test consists of inoculations made upon heifers. The clinical test consists of inoculations made upon human beings who have never been vaccinated before. This latter test must be successful in every case or else the entire lot of vaccine is discarded. After these tests are finished, the vaccine is placed in sterile glass tubes or on ivory or glass points. The capillary tubes are sealed hermetically under a glass flame and the points are nowadays put into separate glass containers. The packages are

placed in the refrigerator and kept there until placed on the market.

I gratefully acknowledge my indebtedness for material assistance in the preparation of this paper to Dr. Hugo Erichsen, of Detroit, Dr. John A. Huddleston, of New York, Dr. Heman Spalding of Chicago, and various medical works.

If my somewhat presumptuous statements only serve to awaken a better understanding of this most important subject, I will be well content.

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Discussion on Dr. Larned's Paper.

Dr. Wm. E. Quine, Chicago: There is one point in this very excellent paper that attracted my attention, and which, if it can be strongly and conclusively supported, will necessitate the rewriting of the entire subject of vaccination. The point to which I wish to direct attention is the statement by the essayist that a single point of inoculation, not larger than the head of a large pin, will accomplish as much in the way of conferring immunity to smallpox, as a dozen points of inoculation or vaccination.

I challenge the correctness of that statement. I think it has been demonstrated conclusively, first of all, by the observations of Trousseau to be untrue. This very careful observer conducted a series of observations in which he inoculated the same individual every day, day after day, until, at length, the time was reached when no effect resulted from the inoculations. And it was shown that the vaccine operated with gradually diminishing effect to the sixth inoculation, which was without any result.

Every modern textbook on the practice of medicine, that expounds the subject with any degree of minuteness, shows tables controverting the very point the essayist seeks to make—that one point of inoculation is as good as a dozen. There is hardly an authoritative textbook in existence that goes into the subject at all fully, which does not show the percentage of failures or imperfect protections resulting from one vaccination; a considerably smaller number of failures resulting from two inoculations; a still smaller number following three inoculations, and almost none following four inoculations when made on the same day.

And the practice of our European brethren in this respect, which shows nearly always two or three or four good large scars on the arm of the patient, who is considered thoroughly vaccinated, attests the trend of opinion in relation to this subject on the part of those who, generally, are considered most competent to express an opinion. Saturation of the system with the elements of the vaccine virus is necessary to afford full protection.

If the individual is vaccinated again and again, and again, as in the series of observations made by Trousseau, until vaccination produces no reaction, then, and not until then, is the maximum protection conferred upon the individual.

Dr. Larned, closing the discussion: I am very glad, indeed, that Dr. Quine has said what he did, because he has expressed the opinion held by many eminent men of today. But, so far as the modern textbooks on practice are concerned on the question of vaccination, I will say that I absolutely deny that they are authorative on the subject. I claim that the experience of men who are engaged in vaccination day after day, men who know all about vaccination, how it is done and how it should be done, is worth more and their opinions are more nearly correct, than is the case with men who have recourse to libraries and who accept the statements of men who have had no practical experience, merely giving their opinions and evolving theories which are far from correct.

I have had some little experience with vaccination, and one of the stauncheset supporters of my contention is Dr. Heman Spalding, the Chief Medical Inspector of the Chicago Health Department, than whom there is no more authoritative man on the subject of vaccination. He has held out all the time against revaccination or simultaneous vaccination.

If any one thing has been definitely established it is the necessity of vaccination, properly performed. Dr. Quine and I do not differ materially. I would rather that a physician vaccinated a patient a dozen times over, and have a big scar each time, than not to vaccinate him at all, which I consider a crime against society. At the same time, I do claim that when a person comes to you and says that he has been vaccinated repeatedly, and shows the scars to prove the correctness of his statement, that by no means proves that the vaccination was successful. It proves merely that a pus infection occurred at the time of vaccination.

Vaccination does not require any such torture as that. You can confer immunity to smallpox by making a very small abrasion, not larger than one eighth of an inch. It has been done not only once or twice, but hundreds and thousands of times. It is a positive fact and not a theory.

Nothing lies like statistics. That has been shown time and again. Even though European investigators may have shown such results as those mentioned by Dr. Quine, I still maintain the correctness of my statements as made in the paper. I have seen men who were vaccinated apparently successfully, to judge from the scar, and yet three months afterward they submitted to a revaccination and another good result was obtained.

A short time ago, while explaining the subject of vaccination to my class, I called for volunteers for the purpose of demonstrating the operation. One of the students told me that he had been vaccinated within a year by a very prominent physician in Chicago, and that he was immune. I revaccinated him and inside of

a week he had a beautiful "take," so perfect that I exhibited him to a class to illustrate a typical take. The vaccination was not larger than one eighth of an inch in diameter, yet it was a perfect take, and that within a year after a previous vaccination that was supposed to have conferred immunity.

A UNIQUE CASE OF IMPERFORATE HYMEN.*

BY C. B. HORRELL, M. D., GALESBURG.

Any case of imperforate hymen may justly be termed unique; hence, the *adjective* in my topic. And, although long since the sanguinous sheet of the nuptial bed has ceased to be requisite evidence of virginity, yet such cases do occur, and that we may be on the alert for them is my excuse for reporting the following case;

On January 2, 1904, I was called to see Miss A. B., aged fifteen years and four months, a girl well developed for her age and of semi-athletic tendencies, being fond of a bicycle and climbing hills, jumping the rope, etc., of sturdy careful parentage, her mother being in most things solicitous for her girls, of which she was the mother of two, the subject of this report being the younger and her sister two years older in whom for two or more years the menstrual flux had been established normally and without any extraordinary incident. The grandmother who made her home with the family was and for many years had been a *practical*, but not *graduate* nurse, doing much obstetric work, and really quite well versed upon incidents likely to occur in female life from childhood to menopause.

The parents were well to do and I mention the foregoing to emphasize the environments of my patient as being almost ideal, and where in all reasonableness the conditions found later, which furnish the text of this report, might have been discovered earlier. For about two years I had been the family physician but was rarely asked to prescribe for this girl and then usually for some trivial sickness, which passed away in a day or two. I had on one or two occasions interrogated the mother as to whether or not the menstrual flow had appeared, with always a negative answer and the expression that she guessed "that would come along in due course of time" and I admit I was supremely indifferent about the matter as her mother as no serious symptoms appeared.

Upon the day I was called the patient was complaining of considerable pain in the sigmoid curve of the colon and was constipated, had a headache, a furred tongue and slight lumbar pains, temperature normal. By palpation of the *left side* of the abdomen I found the lower colon loaded with fecal lumps and ordered an enema, which gave immediate relief to quite a degree. I gave small doses of soda and calomel to relieve the bowel further and expected that on the following day the patient would be well. Some hours later same day, the mother phoned me that her daughter had difficulty in voiding urine, only securing a very little at each effort and attended with considerable pain. I ordered a diuretic and warm moist cloths applied over the bladder, which relieved her very considerably. On the following day the mother called me to the home stating that her daughter seemed better generally, but that a new condition had appeared. Arriving at the home, the mother met me in the hallway and I could see she was much agitated and very anxious over having discovered just above the pubes quite an enlargement and that she had never discovered it before and that the patient said she had not, and requested me to be very careful in making the examination and give no diagnosis before the girl if it was anything serious. On examination I found a pear shaped tumor extending above the pelvis, tense and resisting and as large as a gravid uterus would be at the fifth month. That the tumor must have existed the day before when I called and that I did not discover it was somewhat embarrassing to me. Although my attention had not been directed to that region by any line of symptoms, but there it was and the question presenting itself to me was, *what is it?*—a gravid uterus, a fibroma, an ovarian cyst, a distended bladder or a blood tumor result of imperforate hymen?

*Read by title at meeting of State Medical Society, May 17, 1904.

That I might be enabled to make an exhaustive examination should it be necessary, I excused myself and going to my office, returned with a surgical case and immediately proceeded: first, to see if there was an imperforate hymen. I found the labia majori separated nearly an inch and presenting a cystic tumor, pouching and even with the line of the vaginal lips. To be absolutely certain that the tumor was not a distended bladder, which it resembled very much, I catheterized the patient securing only an ounce or two of urine, and fully establishing a diagnosis. I incised the membrane and the pent up fluid spurted with such force over the top of a chamber, I intended as a receptacle, to the distance of three or four feet, and yet I secured fully two quarts of tarry grumous blood in the vessel. No shock or blanching of patient occurred and she immediately expressed absolute relief. Antiseptic irrigations were ordered for the vaginal pouch and since the girl has been quite well, and regularly menstruates.

For over twenty years I have enjoyed quite an extensive practice and this is the only case of *absolute vaginal* occlusion by the hymen that I have seen, and in questioning some of my colleagues on the subject, many admit never having seen a case. I have authority, therefore, for asserting its extreme rareness.

We may therefore, learn that such cases are occasionally met and be on the alert for them and during the period of adolescence in girls if there are any symptoms indicating an effort on natures part to establish the menstrual flux, we should not consider our examination complete until we ascertain whether there is an imperforate hymen. And this report will, I hope, influence my hearers as it certainly has myself to be more thorough in the matter of an examination even in apparently slight ailments. For had I been more careful on my first call and examined the abdomen thoroughly instead of simply the *left side*, and that under the sheet, I would have discovered the tumor myself instead of the patient or mother doing so. Had a spontaneous rupture of the membrane occurred and the patient been on her feet or even in bed, the sudden escape of a half gallon of blood would have been alarming to the patient and her relatives and certainly would have placed the physician in a compromising position.

THE PHYSICIAN AND THE STATE.*

BY GEO. W. WEBSTER, M. D., CHICAGO.
President of the Illinois State Board of Health.

MR. CHAIRMAN: The terms of this toast assume that there is a relationship between the medical man and the State. I wish to state at the outset, that it is a generally accepted fact among both the profession and the laity that there exists a prejudice against the physician's participation in any activity outside of the routine of his daily professional labors. It is taken for granted that a doctor should be a doctor and nothing else, that he should be eminent only in his Art. It is against this dogma that I wish to enter an earnest even though a feeble protest. I crave your indulgence therefore, while I talk to you for a few minutes in regard to State Medicine. *What is State Medicine?* While definitions may seem trite, I find that there is a general want of knowledge in regard to what really constitutes State Medicine. State Medicine may be defined as the connection of the state with that branch of Science which relates to the prevention, alleviation or cure of the diseases of the human body. It is "the application, by the State, of medical knowledge to the common weal, and embraces every subject for the comprehension of which medical knowledge, and for the execution of which the Legislative and Executive Authority of the Government are indispensable." "The authority of the state is the inherent plenary power which resides in the state to prohibit all things hurtful and to promote all things helpful to the comfort and welfare of Society." It is a part of the police power of the state.

The work of State Medicine relates to medical education, quarantine, sanitation,

*Response to toast at banquet Zeta Chapter Nu Sigma Nu Chicago, April 30, 1904.

ducation of the people in sanitary laws, he organization and maintenance of Institutions for the sick and infirm, hospitals, dispensaries and sanataria, asylums and educational institutions for idiots and feeble minded children, for mutes and the blind; public hygiene and preventive medicine.

State Medicine began in England only a little over 50 years ago and had its commencement in the United States with the establishment of the State Board of Health of Massachusetts in 1869 and by the creation of the Illinois State Board of Health in 1877. There are now 69 Boards of Health and Examining Boards in the United States. State Medicine is thus, at least in the United States of strictly modern growth. It will be seen to comprehend the systematic effort to work out certain reforms, to protect the public. It is an organized, consistent and persistent effort toward the accomplishment of well defined ends, in which the rights of the State are derived from the duties of the State.

We might next inquire, "what has State Medicine accomplished in the United States?" In the first 75 years of our National History, comparatively little was accomplished, and all efforts to secure the enactment and enforcement of wholesome, sanitary laws, and laws governing and controlling medical education and practice, were largely failures, because the profession was unorganized and ununited. Gradually as the child of necessity, the Marine Hospital Service was evolved, laws regulating medical education and practice were passed by all the States, and Illinois being a pioneer in this direction. Congress provided for the annual conference of State and Territorial Boards of Health, and organized the United States Public Health and Marine Hospital Service, by which practical co-operation is secured in suppressing epidemics, preventing others, and maintaining quarantine. A National Confederation of State Medical, Examining and Licensing Boards, was organized 14 years ago, for the purpose of improving and raising the standard of medical education and providing for interstate reciprocity in Licensure. International sanitary conventions have been held, there has been established state supervision of foods and water supplies, and infectious diseases have been placed under sanitary regulations. The study of hygiene has been introduced into the public schools, school inspection established and maintained, the net result according to Mulhall's statistics being, that the "span of life has been lengthened six years since 1880," an act for which the people stand indebted to the genius and disinterestedness of the medical profession. How has this been brought about? Chiefly because there have been men in our profession, both at home and abroad who have been larger and broader and deeper than mere doctors. They have been men imbued with the true professional spirit; and what do we mean by the true professional spirit? Ruskin classes the soldier with the professions, because he holds his life at the service of the state." What is the essential difference between the laborer or tradesman or business man on the one hand and the professional man on the other. What is it that characterizes the true professional man and ever after distinguishes him from the tradesman or the business man? I think the real difference is the following:

With the tradesman or the business man or one engaged in any commercial pursuit, it is a question of wages. With the true professional man, whether teacher, physician, minister, lawyer or soldier, our estimate is based on this ultimate fact of which we are well assured, that if we place him as the soldier is placed in the fortress breach, whether it be in war or pestilence or famine, with all the pleasure of the world behind him and death and his duty in front of him, he will keep his face to the front. He will follow his duty, no matter where that duty may lead. The true professional man looks first at the service and if there comes a conflict between his work and his wages, between his fee and his duty, he turns his back upon the fee and faces his duty, he "holds his life at the service of the state." It is this which causes the people almost unconsciously to hold the real professional man in the degree of honor and respect seldom

bestowed upon the tradesman. This is above all, the mark of the true physician.

I love to think that in other countries as well as in our own there have been men with these high ideals; and yet when I think of Koch and Pasteur and of Behring and of Lister and of Haller, it gratifies me to know that Haller, who was perhaps the foremost physician of his country, and, next to William Tell, the foremost citizen of his country, was not only a physician but a scientist, a botanist, a poet and a legislator. It pleases me to think that Virchow, the little Pomeranean was for 40 years a member of the Prussian Diet and that he will probably be remembered longer for his citizenship, for his true professional spirit than for his work in science.

When we turn to our own country, it is with feelings of pride that I remember the work of Warren at Bunker Hill and Rush at Valley Forge. It is pleasant to reflect that of the provincial Congress of Massachusetts in 1774-4, 22 of its members were physicians.

Dr. Samuel Prescott was the man who had the courage to take that famous midnight ride with Paul Revere. Five of the members of the Continental Congress who signed the Declaration of Independence were physicians. To one of these, Dr. Benjamin Rush, a monument will be dedicated this year in the city of Washington.

While brilliant work has been done and inestimable service rendered in all branches of medicine, such as quarantine, medical legislation, medical education, sanitary work and investigation, proper housing of the poor, it is in that branch of medicine known as preventive medicine that the work has been done that is of the greatest service to mankind.

We turn from the work of Guthrie and Morton who made operations painless, and from that of Pasteur and Lister who made them safe, to a brief reference to some of these achievements in the line of preventive medicine.

A recent reviewer of a work on sanitary science says, that "with the single exception of the change effected by the acceptances of the theory of organic evolution, there has probably been no modification of human opinion within the 19th Century, more profoundly affecting the general conduct of human life than that in our attitude toward the causation and prevention of disease."

Public hygiene and state medicine have become subjects compelling the attention of statesmen and affecting the welfare of nations. Sanitary law has been endowed with unusual privileges and powers, and sanitary regulations controlling the commerce of the civilized world have been debated in International Congresses. Sanitary science and preventive medicine, terms practically unknown before this century have become household words. Passing over the doctrine of artificial immunity, and the value of antitoxin as one of the grandest triumphs of modern medicine, and the absolute demonstration of Major Ross' that the mosquito is probably the only means of conveying malaria to human beings; it is with especial pride that I speak of the work of Dr. Major Ross and Dr. Jesse W. Lazear, who, with Major Gorgas were members of the Yellow Fever Commission which was sent to Havana during the Spanish-American War, to investigate and if possible, to determine the cause of Yellow Fever and the means by which it is spread. Previous to that time, yellow fever caused from 500 to 1,000 deaths annually in Havana alone and had been doing so for nearly 200 years. It frequently visited the southern states, caused thousands of deaths annually and a vast amount was spent in useless inffectual quarantine. As a result of their work it has been definitely and positively determined that yellow fever is not contagious and that it is conveyed only by the mosquito, and the Island of Cuba which has been scourged by this dreadful malady for 200 years has been almost freed from it. Not a single case of yellow fever has originated in Cuba in the last three years. Not only Cuba, but the southern states have been relieved of a danger which constantly threatened and often visited them, inflicting enormous damage and serious loss of life. As the result of their work, a multitude of lives have been saved, more indeed than were lost in the whole

Spanish-American War; a pestilence has been robbed of its terrors and an annual expenditure of millions of dollars shown to be unnecessary and useless.

At a recent meeting of the Conference of State and Provincial Boards of Health, it was unanimously resolved, "that the sanitary redemption of Havana is regarded as one of the most brilliant achievements in the application of sanitary science to public health work ever accomplished."

Dr. Reed was one of the greatest benefactors of his race and one of the greatest adornments of the medical profession. The results of his work are of the utmost benefit to mankind. His work even to the United States alone for the future means a saving in life and treasure that is cheaply paid for by the whole cost of the Spanish-American War. That war cost treasure and blood, but Dr. Reed's discovery is an adequate recompense for both. Dr. Walter Reed is dead; and while he did not die of yellow fever, yet he freely and unhesitatingly took the chance of doing so, notwithstanding that he was a sufferer from organic disease of the heart and so unable to obtain any life insurance.

Dr. Jesse W. Lazear died of yellow fever in Cuba, September the 26, 1900. Dr. Lazear entered the medical department of the army early in 1900 as an assistant surgeon. He was at once assigned to duty at Quemados, Cuba, and was made a member of the Commission appointed to study yellow fever and placed in charge of a laboratory at that place. I can best describe his work by quoting from a letter sent by the chief surgeon of the department of western Cuba to the surgeon general of the United States army.

He says, "Dr. Lazear has, for the past four months exposed himself with absolute fearlessness in the discharge of his duties. He has examined the blood of every case of yellow fever which has occurred at the Columbia Barracks during that time. Has immensely aided in prompt diagnoses which have been so important an element in the art preventing the spread of the disease and in our successes in the treatment of our cases. In the investigations of the Board, he has shown the same courage, earnestness and ability which characterized all his work. Dying of yellow fever at the age of 34, he leaves a wife and two children the youngest of which he never saw as this son was born in the United States while he was in Cuba this summer." So we see that from Warren at Bunker Hill to Rush at Valley Forge, to Walter Reed and Jesse Lazear and Leonard Wood in Cuba, there has been in our own profession, an unbroken line of patriots.

Monuments and eulogy are for the dead, but no human speech can add anything to their fame, augment the gratitude, the grateful homage, the speechless reverence which should be given, and which we here offer as the loving tribute of a grateful profession to those dead defenders of a great nation, the martyrs of medicine.

Congress granted to the loving kin of Reed and Lazear, a miserable pittance in the way of a pension, but no Act of Congress can make restitution for so great a sacrifice; no recompense can reach them. *Humanity* and *Time* remain their everlasting debtors. They who had so often listened to the morning and evening gun, the daily salutation to the flag, that grand old flag which had been so interwoven with the dearest memories of their lives and colored all their acts with its lasting blue of *true fidelity*, they had been challenged by the deadliest unseen foe that ever lurked in the mire of a southern swamp. The world can scarcely know how brave they were; and yet they never knew defeat, they never shall.

While at the post of duty, just at a time when life was full of promise, when the tide of life was at its full, when the sunshine of hope and success were shining all around them, when the wreath of fame was almost within their grasp, when death seemed almost unnatural, it came in all its hideousness. Theirs was not mere bravery, but true courage, real heorism, more sublime even than the courage of the noble men who manned the Maine.

Meanwhile a patient and a patriotic profession, enlightened by the lessons of history, remembering the woes of war, forgetting not the ingratitude of Republics; offer

our own little tribute to these heroes of ours, swearing allegiance anew, taking new heart, ready for greater sacrifice, for nobler aims, for better service.

"The tumult and the shouting dies,
And the captains and the Kings depart,
Still stands thine ancient sacrifice,
An humble and a contrite heart."
"Lord, God of Hosts, be with us yet, lest we forget,
Lest we forget."

We cannot expect to be the discoverers of chloroform or of a germ theory of disease; or the discoverer of the cause of yellow fever, and yet there is great need for earnest, conscientious effort and of work for the future along the lines of securing desirable, uniform Legislation in regard to Medical Education and the regulation of the Practice of Medicine, sanitary laws, vital statistics and all matters of public health. Let us then here highly resolve to be something more than mere doctors, mere dispensers of drugs, mere machines. Let us here highly resolve to take an interest, a human interest in correlated branches of knowledge, let us study the *social* organisms as well as the *human organism;* let us cultivate anything which will bring us nearer to our fellow men, broaden our intelligence and widen our humanity and extend our influence. Let us cultivate this true spirit of professionalism which is but another name for patriotism; and citizenship, and both are synonyms of that word for which this organization of ours stands, *Fraternity.*

RELATIONSHIP OF EXCRETION OF COMMON SALTS TO DROPSY AND RENAL DISEASES.*

BY N. S. DAVIS, JR., M. D., CHICAGO.

About a year ago a communication by Widal and Javal appeared in La Presse Medical[1], upon "Cure by Dechloridation." The important items in this paper were the following: 1. 10 grams of table salt taken by patients suffering from arterio-sclerosis and interstitial nephritis caused no discomfort. 2. Pronounced oedema was caused in patients suffering from diffuse nephritis by the same quantity of salt. 3. In one case experimented with for two months oedema varied in proportion to the quantity of salt eaten. The writers made oedema appear and disappear at will nine times in this case. They concluded from these observations that the administration or withholding of albumin is immaterial in the diet of sufferers from nephritis and that salt alone is responsible for oedema because the latter disappeared upon a meat diet when salt was kept out of it. They reasoned that salt should not be fed even to cows which were to supply milk to nephritics.

Since this paper appeared in print a considerable literature has sprung up upon the subject, and observations have been recorded from various countries which confirm the facts recorded by Widal and Javal.

I have been able to watch closely during the last winter only a few cases of diffuse nephritis, but I have been much interested to note in these that there was uniformly a small elimination of sodium chloride when there was much oedema and its increase in proportion to the disappearance of oedema. For example, a young woman who came to me from Northern Michigan with well marked chronic diffuse nephritis, extensive oedema and mild uremia voided only 540 c.c. of urine in 24 hours, containing 15% of albumin and 1.5%[1] of chlorides. She was put to bed, placed upon a milk diet, and given cathartics and alkaline diuretics. The daily elimination of urine steadily increased, so that two weeks after she came under treatment she voided 1500 to 2000 c. c daily. The chlorides also steadily increased, so that at the end of the first week they were 2.5% at the end of another three days were 4%, and at the end of two weeks 6%. During the following three weeks they varied between 6 and 8%. Just in proportion as the elimination of chlorides increased, the urine increased and the oedema lessened and

*Read at the 54th Annual Meeting, May 17, 1904.

[1] No. 80, 1903.

[2] These estimates were made with a centrifuge. The average normal per cent of chlorides determined by it is 8.

finally disappeared. After the first week of treatment an exclusive milk diet was not maintained; she was allowed breads, cereals, many vegetables and fruits as well as milk. I have notes of five other cases, several of which were much less oedematous and several were seen for so short a time that only the beginnings of improvement were observed, but in each the same reduced percentage of chlorides was found and increase in proportion to the disappearance of the oedema.

We can accept as a fact established by the observations of many clinicians in different countries that in chronic diffuse nephritis when oedema develops, the kidneys secrete less of chlorides and that a milk[3] or other diet containing no chlorides, or very small quantities, will cause the oedema to lessen and often to disappear and in proportion as it does the percentage of chlorides in the urine increases.

The production of oedema in Bright's disease has never been satisfactorily explained. A few years ago Loeb urged that oedema was dependent more upon osmotic changes than upon vascular pressure. He believed that metabolism became imperfect or unnatural because of a diminished supply of oxygen, and therefore soluble substances were produced, accumulated in the lymph spaces and caused a rise in osmotic pressure.

Widal offers the following explanation of the facts observed by him: That sodium chloride is not eliminated easily by the kidneys when they are subject to the lesion of chronic diffuse nephritis, and when eaten generously accumulates in the tissues, therefore, in order that it may not be abnormally concentrated in the lymph an unusually large quantity of fluid must accumulate in the inter-cellular spaces. In other words he believes that sodium chloride is the soluble substance which increases osmotic pressure rather than something resulting from modified metabolism, as supposed by Loeb.

It has long been known that in diffuse nephritis, both acute and chronic, the elimination of chlorides was lessened, and that in interstitial nephritis it was variable but usually not so much diminished. It has also been known that salt was a constant ingredient of dropsical fluids. Gamge says that the inorganic salts in these fluids are similar in character and amount to those in the plasma of the blood. Various analyses show that the soluble salts vary from 6 to 9% and in hydrocele fluid the per cent of sodium chloride is six.

Even when salt is fed to animals or man in excessive amounts its percentage in the blood is not increased, or at least only temporarily for what can not at once be eliminated through the kidneys is stored in the lymph spaces of the tissues.

Widal and Javal[4] have recently reported experiments on three healthy men as to the effect upon their weight of a sudden change from a diet including large quantities of salt to one containing none. The result was a loss of weight of as much as 2 kilograms and of 10 or 12 grams of chlorides. It is evident therefore that an excess of chlorides in food will cause the retention in the tissues of a considerable amount of fluid even in health. In one case of Bright's disease they found that an increase in weight of 6 kilograms occurred before oedema was demonstrable. Therefore we can properly speak of a preoedematous state in which the lymph spaces are full but not so excessively full as to afford physical signs of oedema.

Levan and Causade[4] also gave an emaciated man with sound kidneys 2 eggs, 1 liter of boullion, 1 liter of tea and from 10 to 20 grams of salt daily, with the result that his weight increased 2 kilos and 600 grams. This increase ceased when the excess of salt was stopped, although his diet was made more generous.

Widal and Javal[5] in December last showed that the elimination of chlorides and urea did not run parallel. Therefore the kidneys may be comparatively impervious to chlorides and permit a fair elimination of urea and phosphates, or the reverse of this may be true. In one of the cases which I have

[3] Milk contains about .15% of sodium chloride.

[4] Society de Biologie, Seance du 12 Mars 1904 (La Semaine Medical March 23, 1904.

[5] Seance 19 December, 1903.

studied this winter one per cent. of urea and one of chlorides was voided at one time and .6% of urea and 3.5% of chlorides at a second and 2% of urea and 0.8% of chlorides at a third, although the diet remained the same during the time when these examinations were made.

It is therefore important that we study the power of the kidneys to eliminate chlorides as well as urea, if we wish to appreciate the effect of their disturbed function upon any patient's general condition.

In March last these same observers[6] reported a study which they made of the salt contained in the vomit of a uremic patient. They found that the amount of salt vomited during twenty-four hours was much in excess of what was eaten, therefore they concluded that so-called gastric uremia is an attempt at vicarious elimination.

In the production of oedema Laufer[7] urges that increased osmotic pressure due to accumulation of salt in the tissues is not the only factor for he found that when patients suffering from both interstitial and diffuse nephritis are put upon a diet containing little or no salt, blood pressure rose from 22 to 34 m. m. in the former and from 18 to 30 in the latter. He found that similar changes in arterial pressure occurred when water was drunk copiously. These changes in arterial pressure he believes help to increase the elimination of fluids by the kidneys.

In 1853 Wundt[8] found when a healthy man took no salt for five days that each day less urine was voided and that on the third day albumen appeared in it. In 1864 Rosenstein experimented with dogs and found that a great reduction in urinary chlorides due to abstinence from salt containing food was accompanied by albuminuria. In 1884 Lepine[9] showed on the contrary that intravenous injection of 7% of salt caused albuminuria. These apparently conflicting observations were not harmonized until during the present year Castaigne and Rothery[10] took up the problem.

First they observed the changes wrought in bits of healthy renal tissue when the latter were allowed to soak in brine of varying strength. A salt solution freezing at —0.78c caused the cells of the kidney to stain most perfectly and to appear most natural. Solutions with higher or lower freezing points caused the epithelium of the convoluted tubules to become swollen so as to narrow or block the tubules; to become less granular and often vacuolated. In life and in health, as is well known, the percentage of salt in the urine is quite constant and practically that found in these experiments most beneficial to the epithelium. The glomeruli therefore when healthy permit only so much salt to filter through as is best for the cells lining the tubules.

Healthy animals deprived of salt uniformly developed albuminuria and usually on the second day. Microscopical examination of the kidneys showed swelling of the epithelium of the convoluted tubules, fewer granules in the cells and often vacuolation of them, changes similar in all respects to those produced by soaking bits of renal tissue in water or a solution of salt with a freezing point of less than—0.78c. They repeated the experiment of Wundt and found that an albuminuria developed in man as readily as in animals when he was deprived of salt. Why then is diffuse nephritis benefited by withholding salt from the food? Because enough has been retained in the tissues to permit of its continued excretion in quantities within the power of the diseased glomeruli and because its withdrawal checks its accumulation in the tissues and the consequent production of oedema. These same experimenters found that feeding animals unusually large quantities of salt also caused albuminuria and that injections of even small percentages of salt in animals which had nephritis precipitated fatal results.

Sodium chloride doubtless plays a considerable part, if not the chief part, in the oedema of heart disease and possibly in the

[6] Societe de Biologie seance du 19 Mars, 1904.

[7] Seance 13 Fevrier 1904.

[8] Uber den Kochsalzgehalt des harns. Canstatts Jahresber u die Fortsch des gesamt Med.

[9] L'Albumenurie dyscrasique (Rev. de Med. 1884, p 911.

[10] La Semaine Medicale No. 38, Sept. 1903.

passive congestion of solid organs. I have long been impressed with the fact that in many cases of valvular disease of the heart with dropsy, the latter would not disappear until a strict milk diet was prescribed, although in all other respects the treatment remained the same. Moreover even milk must be given in very moderate quantity, not more than 6 or 8 glasses daily. This means the administration of very small amounts of salt. I have found the same thing true of passive congestion of the liver. I have supposed that the liver did not contract under cardiac tonics and depleting measures until the milk diet was established because a mixed and generous diet taxed it functionally. Possibly, however, the salt contained in the food has something to do with it.

Achard[11] explains the dimished or cured ascites due to cirrhosis of the liver, occasionally observed when patients are upon an exclusive milk diet, as a result of the withdrawal of most of the salt customarily eaten. He found in one case experimented with that much relief was obtained when salt was withheld and that the percentage of salt in the ascitic fluid varied with the amount eaten.

To two patients with ascites Widal[12] gave 10 grams of salt in addition to their usual food which caused in the first an increase in weight of 4 kilos and 550 grams in ten days and in the second of seven kilos and 100 grams in nine days. When the salt was discontinued their weights became stationary.

At least one case of phlegmasia alba dolens has also been promptly helped by withholding salt from the food eaten.

Evidently therefore oedemas of various origins can be lessened or increased by varying the amount of sodium chloride in food.

I do not feel convinced that other soluble substances may not have a similar effect in producing increased osmotic pressure and dropsy, but the numerous observations and experiments which I have cited, show that at least sodium chloride is often the most important or only such substance.

In cases of oedema and especially of oedema associated with nephritis a diet should be prescribed which will contain no salt or a minimum amount. It may consist of small quantities of milk or only of foods rich in water, sugar or starch, such as fruits and rice or tapioca.

A year does not go by without a new discussion of the old subject, is meat or a proteid diet permissable in diffuse nephritis. I have long contended that this question was not to be settled by estimating the ability of the kidneys to eliminate urea or nitrogen, for the detrimental effect of meat and of a mixed diet is due chiefly to the toxic substances which it contains and especially to those generated by imperfect digestion and consequent fermentation in the gastro-iptestinal canal. But hereafter we must consider the salt contained in such food as one of the toxines. The proteid itself is rarely harmful unless the kidneys are almost functionless when all food should be stopped and water only given to the patient. Milk which contains a minimum of toxic matter, digests readily and does not easily undergo deletirious fermentation, is the best food for those having diffuse nephritis. Moreover a strict milk diet is always an abstemious one which will not tax organs already functionally inactive. Of proteid food, next to milk, eggs and oysters are least detrimental. But the smallest possible mixture of foods should be used until convalescence is established in acute cases and until marked improvement is obtained in chronic ones.

Not only is it necessary to consider salt in the treatment of dropsy and diffuse nephritis, but it is of possible aid in demonstrating the existence of interstitial nephritis in its earliest stage before albuminuria is established, when there is increased arterial tension, and when large quantities of urine of low specific gravity are frequently voided. If salt is given generously in such cases a temporary albuminuria will be provoked quickly, showing the lessened functional power of the glomeruli.

[11] Societe Medicale des Hopitaux Seance de 6 Nov. 1903.
[12] Soc Med des Hopitaux 6 Nov. 1903.

If the observations which I have brought together in this paper are confirmed by a wider experience we must conclude that salt solutions should be used hypodermically and intravenously with more caution and judgement than they have been in the past. Surgeons who are about to perform operations which may require the copious use of salt injections should study before hand not only the ability of the kidneys to eliminate fluid and urea, but also chlorides. Achard has recently described a patient upon whom he did a hysterectomy, which was followed by profuse hemorrhage, in consequence of which, in the course of twenty-four hours 10 liters of normal salt solution were injected. The patient died from oedema of the lungs and he asks the question, "did not the large quantity of water and salt possibly provoke the oedema?" The first effect of such injections after hemorrhage, or in collapse, is to fill the arteries and to make the heart beat stronger, but if the kidneys can not eliminate the water and the salt, oedema of the lungs is likely to follow.

Similar injections have been used in uremia, sometimes with good results, oftener in my experience with no results. These variations are probably explainable by the varying functional power of the kidney as regards elimination of fluid and salt. I should expect good results most frequently in uremia due to interstitial nephritis and least often in that due to diffuse nephritis.

Another point worth studying is the effect of a milk diet or better still of foods which contain no salt in averting oedema of the lungs in pneumonia. It is a well known fact that in this disease the kidneys excrete salt in small quantities and it accumulates in the diseased lungs in large quantities. No wonder that there is a tendency to develop oedema in these organs. Experience taught physicians long since that patients with pneumonia do best when given little to eat, and that of the simplest character, and when their bowels are kept moving freely. Undoubtedly the accumulation of blood in the veins and in the right side of the heart has much to do with causing pulmonary oedema, for it can be averted now and again by venesection which helps once more to mechanically balance the venous and arterial blood. To be sure by this procedure some salt is withdrawn with the blood, but probably not enough to account for all the good which venesection does in selected cases.

[12] La Sem Med. 9 Dec. 1903.

RADIO-ACTIVITY.*

BY J. C. SULLIVAN, M. D., CAIRO.

So much bosh having been written and printed about Radium, that the general reader fears some careless manipulator might inadvertently drop a few grains of it and thereby hasten the crack of doom, but no such fears need be entertained, for the possibilities of such are as remote as that of the quack doctor or scientist amassing fame and fortune by their absurd and unethical claims, while on the contrary, when you find any physician in the twentieth century that sneers at electricity as a therapeutic agent, you may rest assured that he knows just as much about medicine and surgery as he does about electricity.

Actinium, polonium and radium are substances extracted from the metals Carotite, Gadolinite, Pitchblend, Uranium, Thorium, Vanadium and Yttertium. Radium being the exponent of its class and when functional simply demonstrates radio-activity, fluorescence having no part in its function.

The question then is, what is radio-activity? A detailed account of an experiment with a photograph of a bunch of keys does not satisfy an enquiring mind, who wishes to know its nature, its source and function, the what, why, when and how.

In order to answer this, we must first consult that scientific ferret, the spectroscope which speaks constantly of hydrogen lines, not only in the sun's atmosphere, but in its corona at a distance of from 10 to 12 (minutes) above, far, too far, for any possible connection with the sun. It is also omnipresent in the spectrum of the stars and nebulae, whose bands are so broad and promin-

*Read at the 54th Annual Meeting, May 17, 1904.

ent in character which together with its well known properties of being the lightest and most powerful refractor of all known substances, demonstrates it to be the medium of interstellar space.

An analysis of sea and land shows the earth is composed principally of oxygen, which according to Schoenbein, is composed of ozone, its electro negative, and antozone, its electro positive properties, these two combining to form the ordinary oxygen.

These elements in an incandescent state can be seen in the working of any static machine showing the blue ozone at the positive and the red hydrogen at the negative electrodes and the green antozone in Crook's tubes, these three being, according to Helmholtz the primary colors, while their elements are the origin of all matter and force.

One atom of hydrogen unites with one of ozone to form water, while one atom of antozone and one of hydrogen unite to form gaseous carbon, the quiddity of all force, light, heat, and electricity. Thus having a unity and trinity of matter as well as a unity and trinity of force. These two combining in definite proportions form every known element of the universe.

For primordial matter as it existed first in the beginning must have been the ultimates ozone, antozone and hydrogen, having all their intrinsic attributes and properties. Their potential, seminal and integrating parts, but without light, heat, weight, color or combination. After consecutive ion upon ion, while floating through space, they united by aggregation, attended by explosion and expansion hurling through space blazing balls of compressed oxygen as the future suns; which with their worlds and systems of worlds, are now floating in that bright and beautiful river hydrogen, that flows by the throne of God.

One of these blazing orbs is our sun and from every portion of its surface are emitted gaseous carbon molecules not in rectilinear lines. But in curvilinear lines describing a double circle or figure eight (8), from east and west, from north and south, thus forming the four great winds of heaven which return "whence they came."

That the sun's rays are electrical is now well known. These rays emitted are positive and carry the cosmic molecules generated in the sun's great laboratory and give the bright lines to the spectrum. Those returning are negative and carry atoms of hydrogen to, and as fuel for, the sun. They are the lines of absorption and give the dark bands of Fraunhofer's lines.

These gaseous, carbon molecules emitted from the sun acting as so many shuttles playing through the warp of hydrogen and carrying the woof of oxygen weaves every structure, from the tiniest crystal to the most complex and highly differentiated cell. Those rays emitted from the poles are magnetic in function, while those from the zodiac are electrical and when molecule by molecule are flitting to and fro through their inter-molecular spaces, in lines transversely and longitudinally and having eight rays in each inter-molecular space of 1/12,500th of an inch in which to bombard each other, they produce, measure and change the wave length and undulations of light, color and sound and by their rapid alterations produce light, and demonstrate the electro magnetic system of Maxwell, and become the elastic, frictional and incompressible medium of Green and also demonstrates that the emission and undulatory theories of light and sound are both correct in as much as it requires both of them to produce the phenomena of either.

These carbon molecules according to the transcendental mathematics of Tait, measure 1/250,000,000th of an inch in diameter and number three and one-half quintillions to the cubic inch. There is 1/12,500th of an inch of space between them in which they can bombard each other with the velocity of 1,512 feet per second. That these molecules are carbon is evidenced in the fact that Prof. Huggins found the brightness of the sun was due to carbon particles in its atmosphere, from Dr. Hunt's research as to whether the source of the renewal of the perennial supply of carbon of our atmosphere must not be sought external to our planet and from the fact that the lines of the carbon bands in

the spectrum never shift even under pressure, although all others do and almost always towards the red.

These rays are those of force and not attraction, hence all things in our solar system are driven to a common center and not attracted by the mythical law of gravitation. These lines of force are driven to all matter, some are absorbed, stored and conserved as future energy, others pass directly through, which lines are the quintessence of radio-activity and are the property of every molecule of matter, some to a greater and more to a lesser degree, according to the crystallization or porosity of their masses of matter. Others are reflected, others refracted which become iridescent and when polarized produce flouresence.

The earth is a magnet and the properties of magnetism may be imparted for a time to substances by rubbing them together or against a magnet, thus producing heat and changing the course of the refracted rays, just as radio-activity of radium, does to water or other substances by imparting its electro magnetic lines to them. We know that palladium will occlude 1,000 times its volume of hydrogen which can easily be recovered by gently heating the palladium, when we find the hydrogen so occluded has acquired far more active properties than the ordinary hydrogen, for it often combines with the hydrogen of the air and will unite with chlorine and iodine in the dark, as it is the bromide and chloride of the little brown powder radium that demonstrates radio-activity and fluorescence. The question then arises, what function has the haloid salts in fluorescence or phosphoresence?

We know that the sun's rays are the source of all energy. That each beam is composed of a luminous, thermal and actinic ray, that the prism disperses these into its spectrum with the actinic ray above the violet and the caloric ray beneath the red. That every band, from and including the caloric ray, to the green are positive and from the green upwards and including the actinic ray are negative, and that about the middle of the ultra violet ray region we find the carbon spectrum and all its region is actinic while no part of the ultra red is.

No matter what particular property in a greater degree one form of electricity may have from another they are all identical each having all the properties of the other, and all reversable, that is; every kind of action that can produce electricity, electricity can itself produce.

Mechanical power turned into a dynamo produces an electrical current, while this electrical current turned into a dynamo will make the dynamo a motor. Its effect on the body is mechanical, chemical and physiological. It effects decomposition, recomposition endosmosis and exosmosis, thus destroying tumors and abnormal growths, giving strength and vigor to the shattered nerve. The body itself being an organization of electro magnetic elements, its activities must be in consonance with electric laws.

Hence, neither radium nor any other form of radio-activity can produce any therapeutical results that cannot be duplicated by the true and tried X-Ray, the King of all.

BACTERIURIA, WITH SPECIAL REFERENCE TO COLI BACILLURIA.*

BY ARTHUR R. ELLIOTT, M. D., CHICAGO.

The constitution of human urine renders it an almost perfect medium for the growth and multiplication of lower forms of organic life. As a consequence, we find that to an unusual degree the urinary tract is subject to attack from bacterial forms of life, the resulting suppurative and infective processes possessing with hardly an exception the characteristic of excessive obstinacy. It is not the purpose of this paper to consider the bacteriology of the urine, but to discuss the comparatively little known condition termed "bacteriuria," the term being employed in the sense originally used by Roberts (British Medical Journal, 1881, Vol. ii, p. 359), to designate certain cases in which the urine is the seat of infection by microorganisms with-

*Read at the 54th Annual Meeting, May 17, 1904.

out the urinary mucosa sharing in the process.

Recent discoveries have added much to our knowledge of the excretion of disease germs by the kidneys in the various systematic infections. It has long been known that toxins were excreted by the kidneys in most, if not all diseases of infective nature, but until recently considerable difference of opinion prevailed as to the elimination of specific disease bacteria themselves, unless gross lesions of the kidneys existed; in other words, unless the filter was leaky. This point is now fully established. A breach of continuity of the renal structure need not exist. The most important of the infective agents eliminated by the kidneys in disease are the typhoid bacillus, bacillus coli commune, pneumococcus, and the tubercle bacillus. The typhoid bacillus is present in about one-fourth of all cases of typhoid fever, often in enormous numbers, in some cases the urine being a pure culture of the germ. The virulence of the bacillus is retained, being equal in one case observed by Richardson to that of a culture from the stools and internal organs. Pneumococci have been found in the urine in large numbers in pneumonia during the height of the fever (Kleinmann). The tubercle bacillus has been repeatedly demonstrated in the urine without pus being present in cases of miliary tuberculosis. Phillipowicz (Wiener Med. Blatter, 1885, No. 22) discovered the bacillus of glanders and anthrax in the urine of animals suffering from those diseases, and was able to cultivate streptococci from the urine in erysipelas and ulcerative endocarditis. Pyogenic cocci have been repeatedly demonstrated in urine free from pus, and Schweiger (Virchow's Archiv, Band 100, Heft 2) has proved that the urine of scarlatina and varicella may be contagious.

While this elimination in the urine of specific germs in infective systematic conditions undoubtedly constitutes bacteriuria in the broad significance of the word, it is not within the meaning of the term as ordinarily used in clinical medicine.

The term bacteriuria, as originally employed by Roberts and Ultzmann, and as understood in clinical medicine, is meant to imply an infection of the urine by bacteria from some source within or adjacent to the urinary tract itself. A distinction is therefore to be made between such cases and those instances just reviewed, in which the urine acts as a vehicle for removal of disease germs from the system, and in which, except in rare cases, the urine is not the seat of their proliferation. For a clear understanding of the condition known as bacteriuria it is equally important to eliminate those frequent infections of the mucous membrane of the urinary organs in which the urine teems with bacteria thrown off from their nidus growth in the mucosa. The symptom known as bacteriuria may be defined as a condition in which bacteria are excreted in large numbers in a pus-free, acid urine, without any sign or symptomatic indication of cystitis or infective nephritis. The urine is cloudy, often lactescent when first voided, and gives forth a putrid, revolting smell, which has been likened by Moullin to the stench of stale fish. The turbidity of the urine when voided, and the penetrating offensive odor are the characteristic symptoms of the condition. The opacity does not settle to the bottom of the vessel on standing, and cannot be separated by sedimentation in the centrifuge or by filtration through paper, although the urine may be rendered clear by passage through a porcelain filter or by shaking with magnesium usta. The reaction of the urine is acid, and under the microscope the field is seen to be swarming with actively motile organisms. The sediment is small and contains no pus, or but a few rare pus leucocytes are to be discovered. Local urinary and general systematic symptoms are generally absent. In most of the cases observed this has been the rule, although a minority have shown vesical irritability, urinary incontinence (especially in children), and occasionally digestive and nervous symptoms have been present. The bacteria are mainly the bacillus coli commune, often in pure culture. Jeanbeau (Gazette des Hôpit., June 24, 1899) collected 67 cases from the literature, in 56 of which the bacillus coli commune was the infective agent. In the remaining 11, it was streptococcus, proteus, Hauser, or

bacillus subtilis alone or in combination. Barlow (Deutsches Archiv für Klin. Med., Bd. 59, p. 347) gathered together from the literature and his own experience notes of 65 cases of bacteriuria. In these, bacillus coli commune was present 19 times—17 in pure culture, twice with staphylococci. Of the remainder, sarcinae were present in 22 cases, staphylococci in three cases; in the remaining two, undetermined bacteria.

In five cases occurring within the writer's experience within the past two years, the bacillus coli commune was the predominating bacteria, associated in three of the cases with common pus organisms.

Concurrence of clinical experience is in favor of the bacillus coli commune being present in the great majority of cases, frequently in pure culture, sometimes associated with pyogenic microorganisms. The importance of the coli bacillus in the urine may be easily over-estimated, because of the great frequency of its occurrence as a secondary infective element in suppurative diseases of the bladder and kidneys. In infective urinary diseases different forms of pus organisms may be abundantly present at first, and subsequently become entirely replaced by coli bacilli, which, because of their rapid growth, hide the original pathogenic microbe. This is undoubtedly the origin of many cases of coli bacilluria.

In the majority of cases of bacillus coli infection of the urine there seems no difficulty in understanding how the organism gains access to the bladder. The path of infection is apparently the urethra, since urethritis, instrumentation or injection have usually preceded the bacteriuria. The writer is inclined to reject the idea of a direct infection by way of the urethra, normal or diseased. Undoubtedly the frequently preceding urethritis stands in a certain causal relationship to the coli infection; not, however, in the writer's opinion, so much by direct infection of the urine *per urethram* as indirectly by preparing the soil through gonococcal involvement of the prostate and seminal vesicles, the subsequent coli bacillus invasion occurring from the rectum through the lymphatics into the inflamed prostate or vesicles.

Coli bacteriuria is a comparatively frequent complication of gonorrhea, especially of cases in which the deep urethra and prostate have become involved. Fuller (Diseases of the Male Sexual Organs; Lea Bros. and Co., Phila., 1895) particularly has called attention to the frequent existence of bacillus coli commune in the seminal vesicles in chronic gonorrhea. This view of the invasion of the urinary tract receives support from the fact that operations upon the rectum, fissures, fistula and hemorrhoids, conditions involving a breach of integrity of the rectal mucosa, and prostatic congestion from irritation, predispose to coli bacteriuria, and in practical experience have been known to give rise to it without urethral aid. Additional testimony is afforded by the frequency of coli infection of the urine in prostatic hypertrophy during the later years of life. Moreover, the almost complete monopoly of this disease by the male sex incriminates the prostate and seminal vesicles.

That the bacteria in cases of bacteriuria find their way into the bladder by way of the urethra is negatived by certain well-known facts. The bacillus coli is one of the common inhabitants of the glans and foreskin, and of the vulva (in 50 per cent. of women, according to Melchoir), and Winslow (Journal Med. Research, Boston, Dec., 1903) has demonstrated its existence on the hands between five and ten per cent. of persons examined indiscriminately. Despite this ubiquitous prevalence of the germ, it has on investigation seldom been found in the normal urethra, or in that channel when diseased. It cannot, therefore, be counted as one of the common bacteria of the urethra. Moreover, statistics show that the bacillus coli is the infecting agent in most of the cases of bacteriuria, whereas staphylococci are comparatively seldom present. We would expect the reverse to be the case, if the infection of the urine were from the urethra, since the staphylococcus is a common, and the bacillus coli a rare, resident of that channel.

Barlow inclines to the belief that the infection often takes place from the bowels

by means of lesions of the rectum, citing as causes such factors as fissures or lacerations of the annus, fistula *in ano,* and even severe massage of the prostate and seminal vesicles through the rectum.

Posner is in favor of the intestine as the source of infection in preference to the blood. In fact, it is only in certain rare cases, where local causes seem entirely lacking, that it becomes necessary to adopt the explanation of Rovsing, that the germs find their way into the bladder through the medium of the circulation.

Even more necesary to explain than the source of the infection is its seat. The bacteria certainly do not live only in the bladder, or the difficulty of removing the condition would be much less than experience proves it to be.

It is difficult to account for the retention of these organisms in the bladder in immense numbers for months and years without exciting inflammation. This may be explained by the fact that the bacillus coli is not, under ordinary circumstances, a urea-decomposing bacteria, and consequently, as believed by Rovsing, is innocuous to the bladder so long as free drainage is maintained. This germ, however, it is well-known, differs greatly in virulence according to the source whence it comes, and it may be that there is some factor in its environment in the bladder which renders it to a large extent harmless to the tissues. The element which suffices to protect the bladder against infection is no doubt the periodic and complete emptying of its contents by micturition, so that the vesical epithelium is not subjected to prolonged contact with the bacteria. In cases where free drainage is interfered with, as, for instance, in prostatic hypertrophy, cystitis speedily results.

In many instances bacteriuria gives rise to no local or constitutional symptoms. As a rule, however, it is accompanied by a peculiar urethral discharge, which may be more or less constant, or only present after efforts at defecation. This discharge may be continuous with the gonorrheal flux which has persisted for an undue period and gradually lost its specific character. Quite as frequently a decided and even considerable interval may elapse between cessation of the urethritis discharge and the appearance of that due to the bacteriuria. An important point is that this pseudo-gonorrhea resists all the usual means of urethral treatment. In three instances of bacteriuria under the writer's observation slight nocturnal and diurnal incontinence existed. If the infection is localized in the prostatic apparatus, the urine may present only intermittent cloudiness. Under such circumstances the first portion of the urine will be more or less clear, the second half being lactescent, or it may be only at the end of micturition, when there is energetic contraction of the peri-prostatic muscular fibers, that the urine shows the characteristic turbidity. In the experience of the writer the bacterial cloud in the urine may be greatly intensified by "stripping" the prostate and vesicles by means of the finger introduced into the rectum.

Irregular constitutional symptoms may develop during the course of a bacteriuria. Digestive and nervous disturbances, lassitude and intermittent pyrexia are frequent. The occurrence of fever in these cases may be explained on the hypothesis of Boyer and Guinard, that so long as the epithelium continues in a healthy state the toxins produced by the bacteria while in the bladder are not absorbed, but if the toxins from any cause such as deficient drainage become concentrated, the epithelial cells being kept in contact with noxious substances lose their vitality, and absorption takes place, with resulting systemic reaction. Under such circumstances, acute symptoms may arise which may even closely simulate typhoid fever, giving, however, no Widal reaction, but showing many coli bacilli in the urine.

The diagnosis of bacteriuria rests upon the presence in the freshly voided urine of an opalescent cloud which cannot be removed by acidulation, filtration or sedimentation. The disgusting fetid odor of the urine is characteristic, and under the microscope large numbers of actively motile bacteria are to be seen. In cases in which the prostate or seminals are the seat of the in-

fection, they are found to be tender to palpation, and yield upon pressure a milky fluid which drips from the meatus, and which, if caught upon a glass slide and stained, is found to be a rich bacterial culture, principally of bacillus coli commune.

The prognosis of bacteriuria depends on the nature, seat and severity of the infection. The condition is always obstinate to treatment—seldom is recovery rapid and complete. In proportion to the extent which the prostate and seminal vesicles are infected is the prospect of recovery prejudiced. The cases in which no infection of these organs can be made out are distinctly more favorable. A strong tendency to relapse exists, and must be considered in framing a prognosis.

An important part of the treatment of bacteriuria consists in the improvement of the patient's general condition by hygienic measures, a full generous diet, careful regulation of the emunctories, and the administration of iron and other tonics as they seem indicated. Urotropin (hexa-methylene-tetramin) should be given and continued perseveringly in a routine manner, from twenty to forty grains daily being administered, in divided doses.

Local treatment consists in the correction of any local complication which may exist. Urethral stricture, hemorrhoids, rectal fistula and fissure should be searched for and treated when found. Free drainage from the bladder is most important, and if from any cause, such as prostatic hypertrophy, the bladder is imperfectly emptied by natural means, the catheter must be employed.

The prostate and seminal vesicles should be carefully examined as to size, tenderness and consistency, and the character of the "strippings" from these organs is to be carefully investigated bacteriologically. If the prostatic apparatus is found to be the seat of infection, the greatest benefit will result from local treatment of these organs. Gentle massage of the prostate and stripping of the vesicles by means of the forefinger introduced into the rectum should be systematically carried out once every four or five days. The greatest gentleness must be employed in performing these manipulations to avoid setting up local reaction through traumatism. A clean sigmoid and colon is to be provided for by means of periodic high enemata taken in the knee-chest position. Local stimulation of the deep urethra by means of silver solutions appears to be of little avail. If the bladder is irritable, or pus leucocytes exist in the urine sediment, lavage of the bladder, with mild antiseptic solutions, is indicated.

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THE MEDICAL TREATMENT OF PUERPERAL ECLAMPSIA.*

BY H. H. WHITTEN, M. D., PEORIA.

Whatever the school of medicine or the means adopted, the prime object of all medical treatment is the prolongation and preservation of human life. This finds its highest expression not in any brilliant surgical operation, tho fame and fee attend, or even in painstaking, scientific therapeutics, but in the prevention of that which shortens or destroys life.

The treatment of eclampsia begins, then, no more with the attack, speaking broadly, than the duty of the obstetrician begins at the time of labor, but begins when the services of the physician are first engaged, and continues until the puerperium is safely passed.

The relation of physician and patient should begin early in pregnancy. The woman owes it to herself and her unborn to consult the physician. The physician owes it to them and to himself to be a wise counsellor. So preach we all of us, but so practice very few of us. We are handicapped in many instances by the failure of the pregnant woman to know and do her duty. For example, I note that in a hundred consecutive cases in my practice, which may serve as an average for the general practitioner, but 20 were seen early in pregnancy, 34 were seen in the last three months and 46, or nearly half, were not under my care until the time of labor. Another goodly

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number notify the physician and hear his advice, but heed it not being firm in the faith that it is not for them to meet with any such misfortune. This handicap can be greatly reduced by physicians who take care to advise patients fully of the serious possibilities that attend the pregnant and parturient state.

Fortunately for our patients and fortunately for ourselves many of us, in spite of this handicap, go from week to week or even from year to year without any serious results, but unfortunately for other patients and ourselves we are thereby lulled into a sense of false security. There is a gradual letting down of our watchfulness until the awakening comes, sudden and harsh.

Physicians do not need to be told so much what to do to cure or prevent eclampsia, since those things are quite generally agreed upon, but they do need to be told and retold of the necessity of using that knowledge which they possess.

Whatever theory we hold in regard to etiology, or whether we have none but leave disputations to others, we are agreed that it is in many cases a preventable attack. Let us then give to our patients no haphazard, general cautions, but let us advise them in detail as to the conduct of life, as to personal hygiene, proper clothing, proper diet, attention to the skin and other excretory organs, and as to the importance of regular methodical examination of the urine by the medical attendant. In this latter we most often find the early and sure danger signal. It is true that many women are attacked by eclampsia where we little expect it, or expect it not at all, while on the other hand a large number of women, in the latter months of pregnancy, have a considerable amount of albumin in the urine, and may have some oedema, local or general, and yet go through labor and the puerperium without any nervous disturbance. When however in the course of our examinations we find any marked albuminuria, whether or not it be associated with any other prodromota as disturbances of vision, epigastric pain and dyspnoea, we should at once take precautionary measures. This means we shall give the patient rest in bed, secure free diuresis and catharsis, and establish, for a time, a milk diet, which diet can gradually be extended in quantity and quality.

Another matter in prophylaxis for which we deserve some censure is the unpreparedness with which we go to an obstetrical case even when we are advised of the nature of the call. While it may not be expected of all of us, however desirable it might be, that we shall attend with all the trappings of the obstetrical specialist, it is well nigh criminal to go to these cases absolutely unprepared for the many emergencies that may arise wherein the time lost in sending for drugs or instruments may mean a life lost. An obstetrical bag, with drugs and instruments for obstetrical work and to be used for obstetrical work only, which should be the rule, is only the exception which proves the rule and proves its value.

Once the attack is on medical treatment has two purposes, to quiet the convulsions and to remove thro every possible avenue the toxic substances that produce the attack. Important adjuncts to drug treatment are hospital treatment, when such can be secured, or, if not, a suitable room where absolute quiet can be maintained, a capable nurse and such measures as prevent the patient doing herself harm while in the seizure.

First of all drugs, because of its celerity and certainty is chloroform. While it is true it is a dangerous drug, tho much of the danger of chloroform is in the way of administration, and there may be as at any other time special contraindications, women, at these times, it seems to me, take chloroform with less of the various ill effects than under any other circumstances. It should be given to complete arrest of the convulsions and continued sufficiently long to permit of the action of other drugs which may be sufficient to control the nervous system, which drugs act more quickly thro the previous administration of chloroform. The time which chloroform may be given may not be arbitrarily fixed but must vary with the individual. In one case it seemed absolutely necessary that I should continue it

for four hours and I did so for that time without any untoward results.

Next to chloroform in rapidity and efficiency is the hypodermatic injection of morphine, and, unless contra-indicated, it affords a reliable control over nervous and muscular irritability. The *Therapeutic Gazette*, February 15, contains a note on its use by Dr. Hirst, and the number of March 13 a comment on that by Dr. Tyson, which articles are of great interest and value. Scientific work and clinical experience show that morphine is dangerous in cases of chronic interstitial nephritis only, and that almost all causes of eclampsia are associated with parenchymatous nephritis. In this latter condition the renal epithelium is capable of eliminating the morphine readily.

A further objection to morphine is urged in that it is antagonistic to the eliminative treatment which is essential to the cure. Care must govern its administration but as a rule it may be given safely in ¼ to ½ grain doses and repeated three times if necessary.

Chloral and bromides, large doses of which may be given by the rectum, are next in value as nerve sedatives.

A most useful drug, the more used the better liked, the sine qua non of many practitioners, is veratrum viride, which may be given by the mouth or by hypodermic. For the relief of arterial tension and spasmodic contraction of the arterioles, reducing the rapid pulse, nothing else is its equal.

It contains no element of danger since any overdose is promptly rejected by the stomach. If the patient is conscious it may be given in doses of 5 to 20 minims, by the mouth, repeated ever half hour until the desired result is attained or nausea is induced. As large doses as this may also be given by hypodermic and 10 minims repeated in half hour if needed.

In eliminative treatment the introduction of salt solution by bowel, under the skin or intravenously, preceded by free sweating induced by hot packs and not by the administration of pilocarpin, is of the highest value. If the sweating be not secured before the salt solution is given, the venous side of the circulation may be much overbalanced and so great amount of work put upon the right heart that death may follow. In many cases, not necessarily in the plethoric only, bloodletting is indicated as a preliminary step. A certain amount of toxic material is thereby directly removed from the circulation and the saline solution further dilutes the remaining portion.

To secure free catharsis a drop of croton oil should be given and if the patient is unconscious it may be placed in a little oil and placed on the back of the tongue. Great care must be exercised in the administration of drugs by mouth when the patient is unconscious lest a pneumonia result through the inspiration of foreign bodies.

Two drachms of a concentrated solution of magnesium sulphate may be given every 15-30 minutes if the patient is conscious. To these means may be added colonic flushings if the patient can be properly cared for.

To attempt to secure free diuresis during the attack is but to multiply drugging without additional results for good.

Symptomatic and consecutive treatment necessarily follow. Exhaustion, with pale face, weak, rapid pulse demands hypodermics of nitroglycerin, brandy, ammonia and ether. The crisis safely passed, the consecutive treatment must be eliminative and along the lines of prophylaxis that precede the attack, with such reconstructive tonics as may be needed.

I had hoped to speak strictly to my text, but I can not but say a word which touches on the surgical side, in reference to cleanliness, since cleanliness in the conduct of labor is a prophylactic as regards post-partum eclampsia which eclampsia may be as severe as any intra-partum attack.

We preach "Be Clean" in medical societies, and we read articles in medical journals magnifying its importance until we feel surfeited and perhaps get no further than the title. All men should know it and act upon it. To add infection to woman's many ills by wanton disregard of the most rigid asepsis is nothing short of criminal and uneasy must lie the head of him who can not hold himself blameless.

Discussion on the Paper of Dr. Whitten.

Dr. Brown: Mr. President—I had a case of eclampsia last week which was very interesting to me. One trouble about the preventive treatment is that the general practitioner cannot prevent these convulsions, because he is rarely ever or never called in time. If called when the eclamptic seizure is on, I think most ordinary practitioners will find that in three-fourths of their cases the head is not engaged, so we cannot help ourselves. We are called in an emergency. In the case I had last week I was called when the woman was in the midst of a convulsion. The treatment that has been described was followed out. The urine cleared up almost entirely, but the fetus was dead from the first convulsion, although the woman insisted that it was alive. In about ten days it was deemed necessary to take away the dead fetus. Twenty-four hours following this eclampsia returned, and in forty-eight hours the woman had almost as many convulsions, and was comatose until death occurred in spite of the treatment given.

I would like to have some of the members tell me why the albumin had almost disappeared, yet up to the time of removing the dead child it reappeared.

Dr. A. K. Van Horne, Jerseyville: I did not hear this paper, and I do not know whether the author advocated venesection or not in cases of eclampsia.

Dr. Whitten: Yes, venesection was advised in some cases, particularly in plethoric patients, as a preliminary measure.

Dr. Van Horne: When the eclamptic seizure is on and the physician is called in, the only thing to do, in my opinion, is to extract blood freely. I have known it to do good in quite a number of cases, with entire relief to the patient.

Dr. Rudolph W. Holmes, Chicago: Unfortunately I was not present when the paper was read. However, I have gone through the paper rather cursorily, and have been able to get enough out of it to know what Dr. Whitten has embodied in his paper.

There is no question but that the medical treatment of eclampsia is prophylactic, and when it comes to the eclamptic state, then operation is the procedure of choice in most instances. From the standpoint of prophylaxis, the essential thing is to begin treatment early. There should be supervision of the kidneys, regulation of the woman's diet, and see that elimination is being properly carried on, which is apt to be very deficient during pregnancy, and this can only be brought about by educating people to call in a physician at the beginning of pregnancy. Moriceau, in 1650, states that pregnancy is a disease lasting nine months. If it were true then it is eminently true now, when life is involved with so much that is artificial and unnatural. The kidneys must be stimulated; the diet must be regulated, and by not overworking the body functions we will to a considerable extent do away with eclampsia. I believe that where eclampsia normally occurs once in 250 cases, if the proper treatment is instituted early there would only be one case in two thousand, or even less than that. When the patient gets to the convulsive stage, I do not believe in the use of chloroform to stop the convulsions, because by the time you see twitching of the face and get the chloroform mask in working order the convulsion is practically over. Of course, when you are operating, deep anesthesia by chloroform is better than ether, because it is less irritating to the kidneys. During the eclamptic seizure, and even before, the essential thing is not to give the patient chloroform, which replaces to a certain extent oxygen, but that oxygen should be given in the pure state. This, of course, can be done in a hospital, as a routine, but one can do much for the patient during the attack by opening windows, when permissible, so that such pure air can be obtained. The tongue should be protected by putting a cork or soft piece of wood between the teeth. Chloral and bromide can be given per rectum, and will do a good deal more towards controlling the convulsion than chloroform, even though slower in its action. I believe that morphia, while it reduces the reflexes which is essential, is injurious, because it reduces excretion, and it is excretion that is very essential. I am convinced that many of the eclamptics who lose their babies, where morphine is used, lose them from morphine poisoning. I have seen babies born after the administration of morphine that required protracted artificial respiration. These cases presented typical pictures of morphine poisoning. I do not believe pilocarpine is of much value. In fact, the only case in which I ever used pilocarpine the woman died. I think it is too depressing to be used at this time. Salt solution is one of the best things to be used during the pre-eclamptic stage, possibly accompanied by blood washing, that is, the salt solution is injected into one arm and venesection made in the other arm or it may be better to introduce a certain amount of salt solution, wait a little while, and allow a certain amount of blood to escape through the same incision.

A Russion obstetrician has reported 120 cases, according to his last report, with 6 deaths, really a phenomenal record, and 3 of them were in a moribund condition when he saw them. He believes that the essential thing is to give these women oxygen, morphine, and then let them alone. I was told once in Dublin that they relied on morphine, and a very few eclamptic patients died, but over in Edinburgh, in cases of eclampsia, they used morphine, and the patients died, so climatic conditions undoubtedly have some influence in the mortality of eclampsia.

Dr. Charles S. Bacon, Chicago: I agree with all the essayist has said with reference to the preventive or medical treatment of eclampsia, but in the management of convulsions I should feel like disagreeing with what he says in reference to chloroform. Chloroform has been used to a dangerous extent in the treatment of these convulsions. It is of no value during the attack. The only thing one can do during the convulsion is to keep the patient alive, if respir-

ation is endangered, and the only thing that can be done in these cases is to resort to artificial respiration or other measures that are known to obstetricians. For preventing convulsions chloroform or any anesthetic is dangerous. Morphine has proven to be very safe in my practice. It must be given, however, in carefully measured doses, and when so given within reasonable limits it will control the convulsions as well as anything one can use. Aside from that, the medical treatment of eclampsia must consist largely, if not exclusively, in elimination and in the use of oxygen. Elimination by packing and by cathartics and diaphoretics. Diaphoresis, however, is chiefly accomplished by packing, and the use of oxygen is a respiratory aid.

One of the greatest dangers incident to the eclamptic convulsion is that of heart failure. We know that the heart is seriously injured, as the result of eclamptic poisoning, and the final fatal result is due to the weakened heart movements and the heart is relieved by the use of oxygen. That is about the best cardiac stimulant we can give, so I would rather include oxygen as one of the most valuable features of medical treatment, and discourage the use of chloroform.

DEFECTS OF VISION AND HEARING IN THE PUBLIC SCHOOLS.*

BY J. WHITEFIELD SMITH, B. S., M. D., BLOOMINGTON.

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There is among educators in the public schools a confessed need of proper instruction respecting the vision and hearing of the children under their care; and since state boards of health and school authorities generally throughout the United States are earnestly considering this matter, and practical tests are now being required of teachers, to ascertain if defects of vision or hearing exist among their pupils, this need is all the more urgent.

Experience teaches and statistics show that many children in the public schools are, in the pursuit of their education, laboring under the disadvantages of defective vision and hearing. Where such defects have been brought to notice, they have in most cases been remedied.

*Read at the 54th Annual Meeting, May 17, 1904.

The Influence of Far-sightedness on School Work.

A child with keen intellectual faculties, if he is so unfortunate as to have a high degree of far-sightedness which is allowed to go uncorrected, should not be expected to do his school work comfortably nor to attain the proficiency in his studies that otherwise might be looked for by his parents and teachers. The child's ability to study is restricted. His opportunities are necessarily limited, and what he does accomplish is with pain and inconvenience.

The child does not realize his condition, for he cannot discriminate between good vision and vision that is defective. Because of the condition of his sight, he has never known what it means to see easily and well. How important it is, then, for parents to know the condition of their children's eyes! And it certainly is very desirable for teachers to know that their pupils are not laboring under the disadvantage of defective vision.

Every teacher understands that the proper use of the eyes, although to some extent an unconscious process, is an important factor in education. Indeed, the training of the eyes to observe carefully and discriminate accurately is, in itself, an educational process. About ninety per cent of our sense-perception comes to us through sight, and if in a child this function is impaired, his ability to become acquainted with the external world is likewise impaired.

In the education of children the presentative powers or the perceptive faculties are, properly, the first to receive attention, and in their training the vision is appealed to many times more than any of the other senses; hence the necessity for the child to acquire habits of careful visual perception. Let us illustrate the use of the eyes in an example of an object lesson, and it will be seen how necessary it is for children to have perfect vision; and if any should have an error, how important it is that it should be corrected.

If we take a beautiful and instructive picture and place it before a class of children, some will observe it to a better advan-

age than others, because they can see it better. The outlines, form and lineaments are more closely observed; the mental image and the impression on the mind are better and more lasting. When the pupils come to study it in detail, the several parts are more clearly discerned by those who have good visual powers. In the study of a picture, children should not be allowed to pass hurriedly from one portion to another, but each feature should be accurately observed and fixed in the mind until all of the salient points have been examined.

If the child has seen the several parts of the picture clearly, it is not difficult for him to recall them separately or collectively as he chooses. But, on the contrary, if the picture has simply been looked at rather than seen, and the successive parts have come dimly into view, and the whole has appeared as through a fog or mist, the child's mental picture will be indistinct and imperfect, and his knowledge of the picture will be correspondingly deficient. Thus the condition of far-sightedness retards intellectual attainment.

Requires the best Facilities for School Work. One of the most important considerations for far-sighted students is the question of light. Nothing is more fatiguing to the eyes than to read or write or draw by an insufficient light. Every far-sighted pupil should if possible be seated so that the rays of light will fall over his left shoulder upon his work, while his eyes are in shadow; the quantity of light should be abundant and the quality of sufficient brightness. Next in importance, perhaps, is the kind of print he must read; the school books should be printed in good, clear type, not too closely compressed, nor smaller than small pica.

Children should sit comfortably erect, avoiding a bending or stooping posture, so that the return of blood from the head and eyes is not retarded. They should hold the book directly in front of the eyes, at a distance of twelve or fourteen inches.

Far-sighted pupils should not read continuously for long periods of time, as they may completely exhaust their power to focus the print. It is better to work for shorter periods with intervals of relaxation.

While these remarks apply especially to children who are far-sighted and who have not had their defect of vision corrected by suitable glasses, we must not lose sight of the general principle that school children should not be overburdened with near work—that is, work at close range which overtaxes the eyes.

The education of far-sighted children should have in view the choice of a profession or an occupation in which their vision is not required for very fine or continued work.

Produces Reflex Nervous Symptoms. From the list of symptoms already considered it is apparent that the general nervous system must at least sympathize with the organ of vision under so tremendous a strain. Brain activity is interrupted by far-sightedness, and no amount of will power can fix the attention of the pupil on his books. But this is not the most detrimental feature; nervous symptoms, reflex in character—such as sick headache, neuralgia, chorea, etc.—may be directly attributed to far-sightedness or to some other visual defect. Not only is the child's school work rendered difficult, but his health may become seriously impaired. In these conditions depending on error of vision, medication is worse than useless. The only relief that can be permanent is in properly correcting the condition by suitable glasses.

Near-sightedness Caused by School Work.

Requires Proper Methods of Study. Of first importance in the case of near-sightedness is an attempt to stop the development and progress. This is mainly accomplished by avoiding the continual straining of the eyes at near work. If near-sightedness is developed in very young children, their games and sports should receive attention and be under competent supervision. Children with high grades of near-sightedness do not care for outdoor sports; they do not see well, and for this reason prefer indoor amusements. They readily become interested in puzzles,

dissected maps, authors, card-sewing, etc., but this may prove burdensome to their eyes, and increase their defective vision.

In their school work they should ge given books printed in good clear type of sufficient size. The writing should be of good sized letters and with uniform, fairly heavy lines. Very fine work in the industrial departments —such as fine sewing, delicate drawings, etc. —should be avoided altogether by near-sighted children.

The book should be held in front of the near-sighted pupil, at an angle of forty-five degrees to the plane of the face. The importance of good illumination cannot be too strongly emphasized. Nothing is more productive of near-sightedness than attempts to do near work by insufficient light. This not only favors the development of the defect, but increases it when it is once established. Children should never be compelled to read or study by a dim light, and in case of near-sightedness they should do as little near work as possible by artificial light.

Modifies the Course of Study. We have seen that in far-sightedness some departments of the curriculum are influenced by the condition of bad vision, and in the error we are now considering the same thing is true. In our illustration of the study of a picture or painting, far-sighted pupils worked at a disadvantage. In the case of near-sighted, let us substitute the original landscape of which the picture or painting was a copy, and observe the effect. If the distant view consists of a farm scene with herds of cattle and horses, ripened fields of grain, clumps of trees, babbling brooks and silent ponds, bevies of birds, luxuriant vegetation, beautiful flowers and foliage, etc., the near-sighted pupil can see only the gross forms, and the objects appear hazy and indistinct; all small objects are obscured from view, and if he should be asked to enumerate what he had seen, the landscape could not be recognized by the description.

In the school-room near-sighted pupils have great difficulty in reading the work placed on the blackboard, if they are seated at some distance from it. The same difficulty is experienced if they are required to draw a map or make a drawing from a copy hung on the wall. In order to see a map placed on the wall they must go close up to it.

In most of our schools a great deal of work consisting of reviews, original problems in arithmetic, maps to be copied, spelling lessons, examination questions, etc., are placed on the board by the teacher for the pupils to copy. It is in this sort of work that the near-sighted pupil has the most difficult task.

It is the very popular and commendable custom of some teachers to take their pupils on excursions to the country to study nature and natural scenery; geological and botanical specimens are gathered and classified, and in this way the flora and fauna of the locality are made familiar to the student. Near-sighted pupils cannot engage in this mode of study to the same extent as pupils with normal vision. They are even less capable of it than those who are far-sighted.

Demands Special Care in the Student. In this age of books we are apt to forget, in our eagerness for intellectual attainment, that children differ as much in regard to the strength of their eyes and ability to use them as they differ in their physical strength and constitution. What, then, is a reasonable task for one child may prove a burden to another. Children with near-sighted eyes should be considered as possessing weak visual organs, and though such eyes may be useful, and with proper care, render efficient service, they are subjected to many dangers in the acquirement of an education.

If the near-sightedness is "progressive" in character, the need for care is all the more imperative. No amount of education can compensate for the loss of vision.

Statistics bearing on this point have caused much anxiety, and endeavors have been made to put a stop to the evil. Careful direction and counsel from competent medical authority only should determine the near-sighted pupil's career in school, and the teacher can be of valuable service in pointing out to the parents the extreme necessity of timely action in the care of their children's eyes.

DEAFNESS IN THE STUDENT.

Effect of Deafness on the Scholar. A child that is partially deaf must necessarily accomplish his work with difficulty. He cannot hear well the recitations, nor the directions and instructions from his teacher. Much repetition of questions or answers by the teacher is subversive of good discipline, and if a deaf child does not understand what is said, especially when the teacher is addressing remarks in a general way to the pupils, he frequently lets it pass by altogether.

In some grades of the public school some teachers find a very popular way of imparting information to be the relation of a story from real life, or the explanation of some important mechanism, as the dynamo, or the description of the methods in the manufacture of some familiar article, such as paper, knives, pens, pencils, etc. A child affected with deafness cannot receive the same benefit from this instruction as one with normal hearing. He is liable to lose words, or sentences, or parts of sentences, and thus become confused and lose interest. The recitation is of general benefit to the class, as many points of interest are developed that may not be stated in the text, but this also has its disadvantages to the deaf; the misunderstanding of a word may change the entire thought, and lead to erroneous conclusions.

Its Effect on the School. The principle of attention is no less important in the function of hearing than in the vision of pupils.

A pupil with defective hearing often unintentionally diverts the attention of the entire school. If he is to understand all that is said, he necessarily must ask to have some things repeated; if he appeals to the teacher, this causes a break in the continuity of thought between the teacher and pupils, and if he asks a fellow student for help he may cause his benefactor to lose some essential feature of the work. This is not cited as a criticism on the deaf pupil, but simply to show how deafness can interfere with the harmony and working of the school.

Deafness Affects the Student's Work. Not only is the progress of the school work interfered with, but the character of the work is modified. The reading is frequently in monotones, the inflection and emphasis are faulty, the modulation is imperfect, and the general expression of the voice is characterized by harshness and nasal tones.

This may result from the fact that the student cannot distinguish accurately the pitch and intensity of the sounds.

The cultivation of the voice constitutes no small part of the work devolving on the school. If possible, pupils should be taught to produce pure vocal tones of natural smoothness and clearness.

The effect of deafness on the voice is also shown in the study of music. Music is one of the best methods of cultivating the hearing powers; the pupils should reproduce the tones of the piano in the various keys. Ordinarily it is the low pitched sounds that are the most difficult to hear and reproduce. For example, a pupil who can hear ordinary conversation very well at a distance of four or five feet, may not be able to hear the low tones of the instrument so well, nor the sound of a bass drum at some distance, nor the roaring of the wind. If the internal ear is affected, causing the deafness, the high-pitched notes are heard less distinctly, or not at all.

Discussion on Dr. Smith's Paper.

Dr. Norval H. Pierce, Chicago: There is not the slightest doubt that the public schools are full of children with defective hearing. The seed of incurable deafness frequently is sown in childhood. Touching upon the point of rarefaction of the labyrinthian capsule, commonly known as sclerosis or dry catarrh of the middle ear, I have been very careful to get in the history the number of patients who have had measles, and out of some hundreds of cases I find that 98 or 99 per cent have had measles. That is a very striking percentage, especially because in every case of measles the process which produces an eruption on the skin also is active in the mucousae of the ear.

The vast majority of these cases do not exfoliate, but the lesion here is characterized by punctate islands of round cells in a mesh work of plastic material. This eruption is especially marked about the foot plate of the stapes, the place where the changes in labyrinthian sclerosis or rarefaction occur. There are many children who are not defective except in so far as their hearing is concerned. Germany has become so convinced of that, that every school

has its eye and ear physician. The same thing should be done here.

I am fully convinced that quite a number of children now in the deaf mute asylums might be rescued if their ears were examined. It has been proven that many of them have islands of audition which might be used in their education.

Dr. Harold N. Moyer, Chicago: I have here a resolution adopted by the Section on Ophthalmology at the last meeting of the American Medical Association, held in New Orleans, May, 1903. This matter was brought up and I was asked hurriedly to draw up a resolution, and I am gratified to say that twenty state medical societies have seen fit to adopt these resolutions without amending or altering it. The movement has been endorsed and recommended by the most representative medical organization in the United States. The resolution is as follows:

"Whereas, The value of perfect sight and hearing is not fully appreciated by educators, and neglect of the delicate organs of vision and hearing often leads to disease of these structures, therefore, be it

Resolved, That it is the sense of the American Medical Association that measures be taken by Boards of Health, boards of education and school authorities, and, where possible, legislation be secured looking to the examination of the eyes and ears of all school children, that disease in its incipiency may be discovered and corrected."

An active propaganda has been started, and I have been requested to bring this before our House of Delegates for adoption. When these are all gathered together, statistics will be prepared and a copy of these resolutions will be sent to everybody in the whole country who is in the least concerned in education and Boards of Health and other persons in authority. I think that such a step will do much to bring the matter not only before the profession but the public at large.

Dr. Joseph C. Beck, Chicago: Dr. Pierce has reference to the work that is being done in Germany, especially in Switzerland, with regard to the defective hearing and poor sight of the public school children. Examining physicians have been appointed for that purpose, and I am always glad of an opportunity to mention the name of the man who has been instrumental in bringing this about, Bezold, the man who started these investigations and examinations in the public schools. This work has already done much good. He has organized a body of examiners and specialists throughout Germany and Switzerland, and an examination of the ears, nose and throat is made of every child, so far as these organs have to do with hearing.

He has found that many of these children are not pure deafmutes, but are merely deaf, and that they have one or more islands of hearing. By means of very delicae tuning forks and other instruments Bezold discovered this, and was also able to give proper directions as to what lines these of education should be followed so that the hearing, in many instances, was raised to a marked degree.

In about 75 per cent of these children he found adenoids, and the removal of these cured many a child that had suffered from defective hearing.

He also discovered many cases of poor hearing not discovered either by the teacher or the parent, and he succeeded in restoring the hearing.

Dr. Pierce made one point with regard to special disease that has been brought to the notice of the profession during the past three or four years; that is, rarefaction of the labyrinth or labyrinthian disease. It is entirely new to me that it occurs in children. I know it occurred in older individuals, but if that disease is present also in children, no amount of education or treatment will do any good. All these cases eventually terminate in absolute deafness.

I am very much pleased with the work done in this line by Dr. Frank Alport, of Chicago. He has done a great deal so far as the examination of the eye is concerned, and one sees the benefit of this work all the time. It is to be pitied that he must do all this work himself; that no one has come to his assistance. Much can be done by organizing, as suggested by Dr. Moyer.

Dr. Smith, closing the discussion: I am very well pleased, indeed, that my paper elicited so much discussion. I did not present anything new, but I hoped to arouse some enthusiasm in this work, and I am glad that I succeeded, also that others have had much the same thought, and that the American Medical Association, and other societies have taken up the work and endorsed what has been done.

WHEN TO OPERATE FOR APPENDICITIS.*

BY S. C. STREMMEL, M. D., MACOMB.

So much has been said and written on this subject, during the last ten years by the master surgeons and physicians all over the civilized world, that it is impossible to say anything new or original; but in view of the diversity of opinion still existing among physicians and general practitioners as to the proper time to advise operation for appendicitis, it seems to me becoming to present a paper on this subject before this society.

The surgeons universally agree that the best and safest time to operate is during the interval or very early in the beginning of the attack, and promptly advise surgical

*Read at the 54th Annual Meeting, May 17, 1904.

treatment in all cases clearly diagnosed during the interval or very early in the attack. While the physicians in many localities do not advise operation until the patients condition is such that operation becomes an extremely hazardous undertaking. I have met a great many physicians in consultation and at medical societies and the common question asked is "how can I tell whether or not an attack is going to be serious. I see case after case recover from the attack without operation, but here and there a case occurs that does not. I would like to have definite knowledge on this point, so that I may advise and direct my patients to their best interest."

It has been clearly demonstrated by Dr. Bernays of St. Louis and a number of other surgeons that it is impossible to diagnose the pathology or to prognosticate what the pathological conditions are going to be in any case in the beginning of the attack and in many cases not at all until the abdomen is opened, that it is impossible to tell whether the case will terminate as a simple acute catarrhal affection or become a suppurative case with perforation, whether there is an enterolith or other foreign substance in the appendix, an occlusion of the lumen due to oedema, caused by congestion of the coecum; that we cannot even guess approximately what kind of infection we are dealing with.

If this be true, and it is, it is clearly evident that every case not operated in the beginning of an attack is subjected to the possibilities of developing a serious case. Many, however, do not, and apparently recover, for the time at least, which fact convinces the average doctor that operation was not necessary, notwithstanding the fact that the possibility of another and more serious attack hangs over the patient's head and when such an attack does occur, he is often carried along with the hope of recovering as he did before, until finally a surgeon is called in to give him a last chance. I, myself, have seen eight deaths from appendicitis, none of which were operated. I have also seen five deaths that were operated, all as a last resort. Every one of these cases, through negligence was let go until formidable and fatal symptoms occurred before operation was advised. I am satisfied that every one of these thirteen cases would have recovered if early or interval operation had been done. Medical literature, on this subject, is full of reports of such cases and hundreds of them are still dying yearly, yet there is scarcely a medical meeting where this subject is discussed, but that there is a plea for conservatism, conservatism that conserves the appendix, oftentimes at the expense of the patient's life.

Statistics show that the mortality, in cases operated late, that is: after the first few days, when pus has formed and inflammatory complications have occurred, is from 14% to 20%, while the interval or very early operation (which is nearly always the same as the interval operation) in the hands of a skillful surgeon, has practically no mortality at all.

In order to show the low mortality of the interval operation and also to show that it is the operation of choice, generally, I mailed a postal card, containing the following two questions, to 1,000 of the leading surgeons in the United States: 1st. How many uncomplicated cases of appendicitis operated on between attacks have you lost? 2d. Approximately, how many such have you operated? I received 578 answers. Many of the answers were accompanied by interesting personal letters. In a few instances the limitation of the word "uncomplicated" was not clearly understood, but where it was not in most instances, the cases reported were so classified that I could get the kind of cases I wanted, that is; cases not complicated by any other disease. Any surgeon who has done many of these operations, knows that most cases, are complicated by adhesions, more or less. In the 578 answers received 60,486 cases were reported with 119 deaths, a little less than 1/5% mortality. The men who reported 500 or more cases, average a mortality of 1/10%. Those who reported 100 to 500, 1/5% and those who reported under 50 cases, 1%. The cause of death in 97 cases was not given; eight deaths were stated to be due to faulty

technique in the beginning of the operator's work; five were due to pneumonia; five were due to obstruction of bowels, and one was due to an abscess, which occurred three months after operation. Two deaths were reported to be due to shock, caused by tearing up very dense and extensive old adhesions. The personal letters received were almost unanimous in the opinion that the interval operation is the operation of choice.

Dr. John Wyeth of New York said the mortality in such cases should be considerable less than 1%. Dr. Ricketts of Cincinnati, reported 162 chronic interval cases with two deaths and 76 perforative cases with 14 deaths. His rule is to operate just as soon as possible, regardless of attacks, fever, or other conditions. Dr. John B. Murphy of Chicago had 2,068 cases of all kinds 807 of these were interval cases with only one death. The Mayo Brothers of Rochester, Minn., reported 1,657 cases with two deaths. Dr. A. H. Fergusen of Chicago, reported 800 cases with one death. Dr. McDonald of Albany, N. Y., 1,500 cases with two deaths. Dr. D. A. K. Steele, Chicago, 1,000 cases with one death. Dr. Rob't T. Morris of New York lost one case from omental adhesions reforming about the ilium after digging up quite extensive adhesions. He reported over 300 interval cases. Dr. Jepson of Sioux City, Iowa, 1,200 cases with two deaths. Dr. A. J. Ochsner of Chicago, 694 interval cases at the Augustana Hospital alone, with two deaths. He could not give me statistics on his other cases in time. Dr. John Deaver of Philadelphia reported over 2,000 interval cases with one death, which was caused by a hole in the mesentery through which a knuckle of bowel, subsequently slipped, operation was done for the obstruction but the patient did not survive. Dr. D. H. Craig of Boston said that his experience led him to believe that except as the result of some very unusual accident, there should be no mortality in the interval operation. He hoped that surgeons would not be further incited to remove this organ, simply because it was easy and little danger, because he believes it to be an actively functionating organ and that within a year, he would publish his observations along that line. I received two answers saying it is never necessary to operate at all. Dr. Lenfestey of Mt. Clemens, Mich., reports 150 cases treated with copious doses of castor oil and all the cases recovered and declares there is no use in ever operating. Dr. Himrod of Augusta, Ga., states that he has cured all his cases, 50 in number, without operation. Most of the other communications stated that they preferred and urged the interval operation, but they could not, generally, get patients to consent to operation when they were apparently well. This is undoubtedly true, but if the general public are educated and taught the exact facts in the case, it will not be difficult to get their consent for interval operation, provided they are convinced that the diagnosis is correct. The general practitioner sees the great majority of the cases first and, as a rule, patients will do as the family doctor insists. It is upon him that the responsibility for the future welfare of the patient rests. If the doctor advises operation at his first visit or as soon as his diagnosis is made and the patient does not accept it, then his skirts are clear, and the patient takes the risk.

In this day and age, it is extremely embarrassing for a physician to be caught with a moribund case on his hands, without having advised early operation, when the family and friends find out, that if he had been operated early, there would have been little danger. In many instances, a doctor is not called until the patient has been sick, three or four days. In many other cases, the patient will not consent to early operation. Then again, a surgeon may not be available. Under such circumstances, the Ochsner treatment should be given. If the patient gets gradually, or rapidly worse, he should be operated anyway and an operation selected that would relieve and save the patient's life for the time. Then a radical operation done later, when his condition will safely permit it. It is gratifying to see that physicians all over the country are rapidly appreciating the advantages of the early and interval operations for appendicitis and when the laity understand the sub-

ject better, the mortality from this disease will be very slight, indeed. It has been said that at this time many cases are and will be subjected to operation who have not nor never did have appendicitis. That is undoubtedly true. We all make mistakes occasionally, the surgeons as well as the physicians and as soon as we all know that pain in the right side is not always appendicitis and that other conditions often simulate it so closely, that it is sometimes difficult to diagnose so soon mistakes will be made less frequently. Dr. C. P. Thomas of Spokane, Wash., in reporting 400 cases of all kinds, said that he had operated on 12 cases, that he was sure did not have nor never have had appendicitis. That the trouble in these cases was gastric ulcer, gall stones, kidney stones or some other well-known condition. I, myself, have operated on one such case. It is important, indeed, that we make a proper diagnosis before advising operation, but if that is impossible, an exploratory operation can do little harm, and may determine the real nature of the trouble.

In conclusion, I wish to repeat that 1st. The safest and best time to operate for appendicitis is during the interval.

2d. The very early operation is in the great majority of cases, the same as the interval.

3d. If all cases were operated early or during the interval, there would be practically no mortality, if the operations were done by experienced surgeons.

4th. When cases are not seen until late or refuse operation, the Ochsner treatment should be given.

5th. If, however, the patient gradually or rapidly grows worse, immediate operation should be urged and such operation advised as will give the patient the best chance for his life at the time.

6th. That it is a serious reflection on the doctor who is caught with a moribund case on his hands without having advised early operation.

7th. In view of the fact that the mortality of late cases is from 14% to 20% and that the mortality of interval cases is 1/5% to 1/10%, it is self-evident that the interval operation should be the operation of choice.

Discussion on the Paper of Dr. Stremmel.

Dr. A. J. Ochsner, Chicago: Mr. President—We are centainly indebted to Dr. Stremmel for collecting and presenting these statistics, comprising, as they do, a large number of the cases treated by many different men, some of whom have treated large numbers of cases of the disease, and consequently their opinions should have a great deal of weight. He has collected a large amount of reliable clinical material, and his position is undoubtedly correct. I have forgotten the exact percentage mentioned by him, but it is so low that if every person who is suspected of having an appendicitis were operated, that is, if the largest possible number of mistakes in diagnosis were made, the rate of mortality would be so slight as scarcely to be compared with the mortality during the attack. The early operation under favorable conditions is exactly the same as the interval operation, consequently when the conditions can be had there can be no doubt whatever but that early operation should be done. Of course, in the interval operation one can secure in every individual case safe conditions, and the surgeon must be the judge as to what conditions would be safe in any given case.

Regarding the cases in which operation is refused by the patient or his friends, or in which the condition is such that any simple abdominal operation would be accomplished with a great deal of danger, the treatment which the essayist has referred to, consisting in placing the alimentary canal at rest, I believe will reduce the mortality very materially. I have just reviewed one thousand cases of appendicitis that I have operated on, having reviewed this list in connection with the preparation of a paper for another society, and I have found these interesting facts, that by treating every case that has advanced beyond the early stage that comes under treatment when there is already a perforation, or a beginning diffuse peritonitis, by following this treatment one can reduce the mortality to less than four per cent. I have tested that in a large number of cases, and I would certainly advise it. In cases after the diagnosis has been made, and in those which have advanced beyond a certain stage, the best statistics are approximately fourteen per cent, and from that on upwards. For that class of cases I believe it is possible always to reduce the entire mortality to less than four per cent, which is a great improvement on fourteen per cent.

As to the correct steps necessary to accomplish this, I will say that there is great danger of misapprehending the importance of them. There is no doubt but what a number of lives have been sacrificed because these steps were not carried out accurately. In the first place, it is important that the stomach and alimentary canal be emptied, because as long as there is any fluid in the stomach it is likely to surge down into the intestine, and cause disturbance,

which will carry infectious material from the appendix to other portions of the abdominal cavity, consequently it is important to empty the alimentary canal by resorting to gastric lavage, and, to prevent further regurgitation, the stomach should be washed out again. We should not place anything in the stomach which will again cause peristalsis. Many cases have come under my care in which it was stated absolutely that the patients had received no nourishment, but upon questioning them carefully I have found that many of them had received a little milk, a little soup, or light meat diet, which was just enough to start up peristalsis. It only takes a slight amount of nourishment or food introduced into the stomach to give rise to peristalsis, and peristalsis spreads infection, causing eventually peritonitis, and perhaps death. These patients should receive no food by the mouth. This should be insisted on. No peristalsis, no pain, so that anodynes are not necessary. During the first few days in these cases not even water should be given by the mouth, because frequently the ingestion of water will give rise to the secretion of mucus from the stomach walls, thus increasing peristalsis, which will cause as much disturbance as if nourishment had been given. By carrying out these principles in these cases absolutely, I believe the mortality can be reduced considerably, but of course there will always be more or less mortality in this class of cases.

Dr. J. L. Wiggins, East St. Louis: I am always filled with pride and satisfaction in attending these meetings and hearing the enunciation of ideas that put the treatment of appendicitis upon a reasonably satisfactory basis, and then when I get home and am confronted with a case of this disease, either in consultation in the country or in my own city, I am disgusted with its execution. Whilst there can be no question about the **rationale** of the Ochsner treatment, socalled, in these cases, I must confess that I believe it has done some damage on account of its improper interpretation. Dr. Ochsner himself has emphasized that point, and I think some practitioners carry his treatment beyond a point, where it is safe. I recollect very well, after hearing Dr. Ochsner's address at St. Paul, that I had a hopeless case under observation which I kept under treatment, as suggested and recommended by him, for six weeks, I think he stated that the only case he had lost was one upon which he had operated too soon. I fully made up my mind to profit by his experience, but I lost the patient by waiting. After the subsidence of fever I believe we should operate inside of five or seven days, as a rule. That position is generally understood, but not acted upon even by many of our leading surgeons. I recall a case that occurred within the last few weeks, in which a surgeon of more than local prominence was called in consultation, and in spite of full bedside notes indicating a general fall in temperature and pulse this gentleman conducted the starvation treatment. His suggestion was carried out, and the patient died. What we need is a campaign of education in regard to the proper methods of treatment of appendicitis. While the subject has been pretty thoroughly discussed during the last three or four years, yet at the same time there is ample room for emphasis along this line.

I wish to compliment the Doctor on his very excellent paper in every respect. Usually these subjects are a little tiresome, but the subject as presented by him has been of more than ordinary interest to us, and personally I wish to thank him for his excellent contribution.

Dr. D. N. Eisendrath, Chicago: I want to thank Dr. Stremmel for his interesting statistics. I agree fully with his view that if the patient or the patient's family do not concur in an operation, the responsibility should be placed upon them.

With regard to the differential diagnosis, a number of cases have occurred during the past year or two which I have seen in consultation, in which the general practitioner has made a diagnosis of the pain in the right lower quadrant of the abdomen—appendicitis. Twice I have agreed with them. In the last two days I have seen a patient who had a temperature of 102°, with pain and tenderness located in the region of the appendix. The appendix was found adherent to the posterior aspect of the cecum and practically there was no cause for this elevation of temperature, but on introducing the hand a little farther I found empyema of the gall-bladder. I have known of empyema of the gall-bladder being confused with appendicitis twice, and on account of enlargement of the gall-bladder a portion of the liver was drawn down, and as a result there was more or less gastroptosis, so that the gall-bladder lay about the level of the umbilicus, or even a little lower, as in the last case which I saw, so that the differential diagnosis is practically impossible in such cases, except at the operation. If we suspect a case of appendicitis, with apparently little cause for the elevation of temperature, and inflammatory local disturbance, I believe it is well to explore the abdomen, for the purpose of making a correct diagnosis.

In regard to the Ochsner treatment, I am very glad that the profession in general is taking it up, and using it more intelligently. After Dr. Ochsner first suggested this method of treatment it was taken up, as Dr. Wiggins has said, in a blind manner, and was condemned by a number of eminent surgeons who should not have condemned it. It was a treatment rationally applied to cases of appendicitis in the hands of the general practitioner or surgeons who make it a practice in such cases, when the patients are seen on the first, second or third day, to put them on the Ochsner treatment, and then if they did not improve in twelve or twelty-four hours thereafter operation was advised. I believe that is the position taken by Dr. Ochsner, but the profession has understood that every case should be treated by the starvation method, whether it got better or not. That is not Dr. Ochsner's position, and I am sure he does not want it to go forth as his opinion, if I am not mistaken in regard to it. He operates upon these cases the same as

everyone else does. The chief object to be obtained is to try to operate on these cases in the interval, when the mortality is practically nil.

Dr. Stremmel, (closing the discussion): I have nothing further to say except to thank the members who have participated in the discussion of my paper.

REPORT OF A CASE OF INTESTINAL OBSTRUCTION, WITH REMARKS AS TO THE TREATMENT FOLLOWED.*

BY J. F. PERCY, M. D., GALESBURG.

As the experience of the individual surgeon in cases of obstruction of the bowels must in any event be limited, I have deemed it a duty to report a case of this character which recently came under my care. Intestinal obstruction is usually so insidious in its onset that the word "obstruction," with all the evil consequences that it stands for, frequently does not occur to the practitioner first seeing the case until a train of symptoms develops which points to a rapid dissolution of the patient.

J. H., age 53, on the morning of June 2, of last year was in his usual health until after breakfast, when he was taken with a sudden severe vomiting spell, accompanied by generalized abdominal pain. After getting rid of his breakfast the patient went down town, about a mile distant. Upon his return there was a free bowel movement, but this did not lessen his abdominal distress. The family physician was then called and appropriate treatment given. At this visit nothing was found that suggested the beginning of the serious condition which later so thoroughly manifested itself. The case was assumed to be one of acute intestinal indigestion, and attempts were made to clear the bowels. In this way it was expected that the symptoms of abdominal pain and vomiting would be made to disappear. This, however, did not take place, even though active cathartics were prescribed, and various stomach sedatives administered.

As the patient's condition did not improve, I was sent for by the family physician, Dr. Giles of Knoxville, June 6. At that time the patient could be described as a poorly nourished man with an aged appearance of between seventy and eighty. Upon examination it was found that he was in a semi-conscious condition. The surface of the body was cold, although when aroused the patient would complain of being too warm. Both eyes were turned upward so that only the lower part of the white ocular conjunctiva was to be seen. The pulse was thin, and rapid, feebly beating one hundred and forty times to the minute. The respirations were irregular, spasmodic, superficial and rapid. The capillary circulation over the body was impeded; there was cyanosis of the extremities, especially under the finger and the toenails, the lips, the edge of the ears, the tip of the nose and dependent portions of the body. Hiccough was also one of the most pronounced of the many serious symptoms present in this case.

The abdomen was moderately distended. Manipulation disclosed no palpable masses. Pain was easily elicited over all parts of the abdomen during manipulation, and as well when percussion was attempted. Auscultation gave an infrequent, tinkling, glass bell note, showing that peristalsis was much slowed, but not yet absolutely inhibited. Everything was rejected by the stomach, not even a teaspoonful of water being retained. No movement of the bowels had occurred except the one already reported together with what fecal matter had been washed out of the lower bowel when enemas were given. Altogether the case had a most unpromising outlook.

The family history so far as the purposes of this report are concerned, is negative. The personal history, on the other hand, is interesting, and without a doubt has a direct bearing on the symptoms as described above. The only important illness was an attack of what was then termed inflammation of the bowels. This occurred when the patient was ten years of age. From an older brother of J. H. it was learned that this attack was also accompanied by obstruction of the bowels, and that before relief was obtained, the life of the pa-

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tient was despaired of. A careful inquiry into the history of this first attack, leaves no doubt that it was one of a localized septic peritonitis, due to an acute appendicitis. The subsequent history also bears out very well this view of the case. The patient suffered with various nutritional disturbances, as do the majority of those, the subjects of a chronic appendicitis with adhesions. Without a doubt, the general lack of physical development which was obvious in this case, was due to what the patient called his "chronic billiousness." He had what is usually termed chronic intestinal catarrh. His intestines were usually over distended with gas; and abdominal pressure applied with the extended fingers over the region of the caecum would cause a rush of gas from this region. This is a symptom that I learned from Dr. A. J. Ochsner, and it is most valuable as an aid in the diagnosis of chronic appendicitis. When it exists alone, or in connection with other symptoms common to this form of abdominal disease, one will rarely fail to find a chronic appendicitis with adhesions, when the abdomen is opened. The general nutritional lack so noticeable in this patient was undoubtedly due, in some measure at least, to this acute appendical attack that first manifested itself forty-two years ago.

Increasing experience with the various manifestations of appendicitis has impressed me that a not uncommon form of this protean disease will give a history very similar to the case here under discussion. Within a few months I have seen three cases giving a history of a primary attack before their fourteenth year, and none subsequent until after the fiftieth year. Indeed, two of these cases are now in their sixty-fourth year. This fact takes one more prop from under those whose habit it is to advise patients, once the subject of an acute appendicitis, to wait until they have another attack before considering the question of its removal.

Any appendix that can *really be palpated,* and at the same time *actually* gives rise to localized pain or distress during such palpation, particularly if there is found evidence of stasis of gas in the caecum, should be removed.

However, after removal to the hospital, the patient was immediately prepared, placed upon the table, and his abdomen opened in the medium line through a rather long incision between the umbilicus and pubes. This disclosed a general peritonitis with the belly containing a lot of free, serous-like fluid. The small intestine was greatly distended and inflamed, and besides, was plentifully studded with ecchymosed spots containing extravasated blood. In the ilio-caecal region was a mass of adhesions that was the cause of the obstruction. As the patient was doing very badly under the anesthetic, having stopped breathing for a period of six minutes, necessitating artificial respiration, etc., I decided to empty the small bowel as thoroughly as the haste necessary would allow, and finally to fasten the small intestine into the abdominal wound and make an artificial anus. This was done just above the ilio caecal region, and after a rather stormy post-operative experience, the patient survived the operation.

Upon my return from my vacation the third of August, I found him up and about the ward. He had gained in weight, his abdomen was flat, and barring the disagreeable experiences which his artificial abdominal anus necessitated, was in most excellent condition. The digestive juices from the small intestine had caused a most pronounced excorciation of the skin of the abdomen, especially about the opening into the bowel. To overcome this, and get the abdomen into shape for a radical cure of the intestinal condition, was the problem now before us. To do this, the skin was covered with an ointment composed of equal parts of lanoline and vaseline, and a moist cotton plug was wedged into the mouth of the fistula. This could now be done because the patient had begun to have natural bowel movements whenever the fistulas opening was sufficiently closed. The lanoline in a great measure inhibited the action of the intestinal fluids which still escaped on the skin.

August 5th, two months from the entrance of the patient into the hospital, the second

operation was performed. An incision was made above, below, and around the fistula into the abdomen. This disclosed an interesting condition. Starting from the region of the appendix and involving several inches of the ilium, was a mass of adherent gut. The adhesions were strong and dense, about the appendix showing their ancient origin, while through the rest of the belly there was a marked tubercular peritonitis. There were, then, in this case, two factors at work: adhesions resulting from an old appendicitis, and the tubercular condition. The obstruction for which the primary operation was done, was undoubtedly due to a volvulus of the lower end of the ilium resulting from the adhesions about the appendix. Even at the second operation, although the life condition of the bowel had been restored, at this particular point the tissues were very much thickened, brittle and juicy, due to the tubercular complication. The adhesions immediately about the appendix were broken up without damage to the gut; but those which involved some of the lower part of the ilium were so intimately connected with this part of the intestine, that their separation irreparably damaged the bowel, necessitating the removal of about ten inches.

To have to resect the bowel in the presence of tubercular peritonitis is something no surgeon would invite. The dangers of a mixed infection in the tuberculosis of this region is just as great as, or greater than a mixed tubercular infection in other regions of the body.

Besides this, there is always the danger of a failure of union here as elsewhere, in tissues that are tubercular; but there was no alternative left in this case but to resect the gut, and this was done. Ten inches were removed as shown in the specimen here presented, and the enastomosis made with a Murphy Button. The rule to make the union only in normal tissue was adhered to as far as eye appearances of the gut were concerned, although the whole mesentary of the intestine was very much thickened and oedematous, making it difficult to manage so as to be certain of its repair. All the adhesions possible were broken up, and the abdominal wound was closed without drainage. Primary union resulted throughout. The Murphy Button was passed on the sixteenth day, and the patient left the hospital on the nineteenth day following his second operation.

The improvement as to his general health has been most marked, and will undoubtedly continue for some months, or until the maximum of the improvement possible will be reached. This has already arrived at a degree far and away beyond what it was for some months before the illness which is the subject of this paper.

There are some lessons that we can profitably learn from an experience like the one just described.

First, I would impress that when there is pain and distress in the bowels in a given case, and with it symptoms of shock, that great care be used in deciding on the treatment. If it is deemed wise to give cathartics (and it is never wise to give them), let it be with the idea of not trying to accomplish the impossible. We all know what should be the rational treatment of an obstinate case of constipation. If we do not attempt to do more, and our case proves to be beyond this, we have not jeopardized either the life of our patient or our own reputation.

When vomiting persists wash out the stomach, and with clysters, if deemed necessary, empty the lower bowel; especially if colicky pains are nagging the patient. Do not give morphine until the characteristic symptoms of the particular case you are trying to treat are lost; but send for a qualified surgeon, turn the case over to him and thank God that you have some one on whom you can dump what at best usually proves to be a most undesirable case.

But suppose that you cannot get a surgeon at once, or you have not yet succeeded in convincing the patient or his friends that intestinal obstruction is always a surgical disease, then there is one more excellent plan of treatment. It is just the opposite of the mode of practice usually followed. Instead of giving things often called medicines, give nothing, absolutely nothing, especially by mouth. Intestinal peristalsis will not occur

but to a very limited degree, if the alimentary tract is kept empty. Inhibit peristalsis by with-holding, as emphasized by Ochsner, everything by mouth, and you reduce the pain that is caused by the pathology in the case to a minimum.

Again, suppose that this does not stop the pain, as it will often not do, especially in the beginning when the treatment is first instituted. Still, I would not give morphine. A most excellent substitute for this condition for this unsafe drug is brandy given by rectum. One or more ounces of brandy in four or six ounces of warm normal salt solution introduced slowly and without force, through a catheter into the rectum, will in a few minutes, in the majority of cases, convert a suffering and shocked patient into a comfortable one. A warm glow will usually spread over the body, followed in a short time by a gentle perspiration. The symptoms by this plan of medication are not masked, and you are not lulled into a sense of false security.

Once more, suppose that this treatment fails to give all the relief that the patient or his friends demand. Repeat it, and again if necessary, every hour for two or three hours; as long as the liquor is not detected in the breath, its limit for usefulness as far as relieving pain has not been reached. In the majority of cases this is all that will be required; but if it proves to be not sufficiently pain relieving, then let me add another practical fact, and it is this: In giving morphine by hypodermic injection to any case of abdominal pain, exclusive of renal or hepatic colic, do not ever be tempted to make your initial dose greater than one-sixteenth of a grain. It is surprising to those who have not tried this plan, to learn how a very little morphine suffices in all cases of intestinal pain, especially when post operative or of appendical origin.

In closing, I want to call attention to another symptom in this case, the significance of which is generally not understood, or at least not appreciated. It was mentioned in the beginning, and was to the effect that the surface of the patient's body to the physician's hands was cold, but when aroused the patient complained of being very warm. They usually insist upon throwing the bed clothes down. This is a most unpromising symptom from the standpoint of prognosis, and the majority of patients showing it do not recover. It is attributed to vaso-motor paresis, and its significance from a prognostic standpoint should be borne in mind when recognized.

In concluding, permit me to say that I have not attempted to cover the vast field of the surgery of intestinal obstruction, but rather to report this experience, and from it to lay down a plan of treatment which is both rational and easy of application by the physicians who make no pretense of attempting major surgical work. But remember, finally and always, that the earlier the abdomen is opened, the lower the mortality in intestinal obstruction.

Discussion on the Paper of Dr. Percy.

Dr. A. J. Ochsner, Chicago: Mr. President—This paper contains several of the most useful lessons in abdominal surgery. It contains one lesson which has not been learned by very many who practice medicine, namely, the uselessness in trying to force anything through a mechanical obstruction. Whenever there is intestinal obstruction, a band and intussusception, or an inflammatory condition, it does not matter what the cause of the obstruction may be, if it is a real obstruction, a cathartic cannot do any good. It can only do harm. It can only increase pressure above the obstruction, and in doing this force infectious material through the injured intestine and cause peritonitis, so that in none of these cases can it do any good. The only cases in which it can do any good are those of impaction, in which the impaction will take care of itself the moment you stop putting food into the stomach.

What Dr. Percy has said, if carried out, will save a number of lives, because these patients are killed by the infectious material that is forced through the intestine above the obstruction, except in cases where there is strangulation. In cases in which there is strangulation, the infection goes through the walls of the strangulated intestine. This one point should be remembered, that the only thing a cathartic can do is to prove that the case is not serious. In other words, there is not anything the matter with the patient of any consequence. If the cathartic does not work, it may kill the patient, so that when there is obstruction a cathartic is never indicated. Food should not be given until one is absolutely sure that there is no obstruction.

The other things said by the essayist are of the utmost importance. As soon as one is rea-

sonably sure that there is mechanical obstruction, the abdomen should be opened, providing a surgeon is available, and if not, the patient should be taken to a surgeon.

I do not wish to detract from the other things that were said, but desire to emphasize one point, namely, that the first thing usually given to these patients, and I have seen dozens of them with mechanical obstruction of the intestine, is a lot of cathartics. This is a mistake. It is very much like trying to force a lot of men through a doorway at the same time. You cannot do it, and therefore it is necessary for some of them to pull back, and so in these cases of mechanical obstruction of the bowels you must put nothing more above, if you wish to get things through.

INFECTIOUS ULCER OF THE CORNEA*.

BY WILLIAM H. WILDER, M. D., CHICAGO.

Assistant Professor of Ophthalmology, Rush Medical College, Professor of Ophthalmology, Chicago Policlinic, Surgeon. Illinois Charitable Eye and Ear Infirmary, etc.,

Under the title, infectious ulcer of the cornea, it is intended to consider briefly some of the most important features of diseases of the cornea that are usually described in the books under the headings, Suppurative Keratitis, Serpiginous Ulcer and Abscess of the Cornea.

The prompt recognition of this condition, and the institution of proper measures to check its course are of the utmost importance, and inasmuch as the general practitioner is called upon to deal with this affection quite as frequently as the specialist, at least in its incipient stages when it is most amenable to treatment, I have ventured to present the subject at this general meeting.

With the cornea as with other structures of the human body, anything that tends to lower the general nutrition conduces to the unfavorable action of infection; and vital resistance plays as important a role in warding off infection of the cornea as it does in the lung or any other organ. Naturally, therefore, we shall expect to find infectious ulcer of the cornea most severe in individuals in whom there is impaired vitality of the structure either from a general or local depraved nutrition. Badly nourished children, convalescents from wasting diseases, alcoholics and old and broken down subjects would therefore be more prone to infection of this part than robust and healthy individuals.

Consideration of this important underlying cause therefore must be taken into account in the treatment.

But added to this weakened vitality of the cornea there is the organic cause in the shape of an infectious organism which gains entrance to the cornea through an abrasion or wound sometimes apparently trivial.

The intact corneal epithelium forms a most effective barrier to the entrance and action of micro organisms, and even the most virulent forms such as the gonococcus and diphtheria bacillus fail to affect it unless the secretion in which they are contained lies in contact with the cornea for a considerable time. Thorough and frequent flushing of the conjunctival sac therefore frequently prevents the invasion of the cornea by such specific diseases of the conjunctiva. But if for any reason the epithelium is broken, the germs rapidly gain entrance to the corneal substance. A scratch of the corneal epithelium from a finger nail, a twig of a bush, a beard of grain, a cinder or any other foreign body are familiar examples of slight injuries that because of neglect in early treatment frequently lead to irreparable injury of the eye. Through such a wound germs may enter to cause abscess and suppuration. Persons whose occupations render them liable to injury of the cornea, present a great number of such cases. Thus hostlers, nurserymen, harvest hands, barbers, railroad men and lathemen frequently suffer.

The infection need not be conveyed by the object that causes the injury to the cornea, probably in the majority of cases it is not. The infective germ may be already in the conjunctival sac, or if not it may be carried there by dirty fingers or cloths. Few conjunctival sacs are sterile, and most of them contain germs of some sort, while in the adjoining lacrimal sac, particularly if

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there is any retained secretion because of an old inflammation, may be found many of the 57 varieties that infest the nose and mouth.

The pneumococcus of Friedlander is the most frequent cause of the disease we are considering, and probably in many if not a majority of the cases this germ was retained in the lacrimal sac. Other diplococci, as for example the gonococci may excite suppuration; and the staphylococcus pyogenes aurens and albus as well as the streptococcus may be the active infective factor to excite suppuration of the cornea. In fifty cases examined by Uhthoff and Axenfeld to determine the nature of the infection, the diplococcus lanceolatus of pneumonia was found pure in 26, while the same germ together with other micro-organisms was present in seven cases. In 13 cases, the pneumococcus was not found, but staphylococci and other micro-organisms, while in four the bacteriological examination was negative.

Clinical Appearances:

Soon after the receipt of the injury, which, as has been said, may be only a slight abrasion of the epithelium, the cornea immediately around the little wound begins to show a grayish opacity, owing to the infiltration of the corneal substance with leucocytes and round cells. The corneal corpuscles proliferate. In a day or two there may be a distinct loss of substance at the point of injury owing to the breaking down of the infiltrated portion, and a more or less clearly defined ulcer may be seen whose floor presents a dirty grayish slough, and whose edges are bordered by a grayish or yellowish zone of infiltrated cornea.

The ulcer shows a tendency to rapidly invade the healthy tissue and to spread in one or other direction over the cornea on account of which there has been given to it the name serpiginous ulcer. The advancing infective border is always characterized by the grayish sloughing floor and the zone of infiltration of the adjacent corneal tissue. It may show a tendency to extend deeply into the substance of the cornea, in which case there is great danger of perforation and infection of the interior of the eyeball.

As the ulcer advances in one direction, healing may take place in the part first affected. The floor of this part of the ulcer becomes clean by casting off of the minute sloughs, and new epithelium grows down the side of the little depression and on to the floor.

This favorable change may be recognized by the glistening sides and floor of the ulcer, when the corneal reflex is obtained.

At this stage there will usually be present hypopyon, which is an accumulation of pus in the aqueous chamber. The quantity is variable, but in severe cases it may half fill the anterior chamber. If it is quite fluid it may change its position with the movements of the patient's head, gravitating to the lowest part, but frequently it is so thick and fibrinous that its position will not change. The pus does not come from the abscess or ulcer of the cornea. Properly speaking, it is not pus, but an inflammatory exudate, composed of leucocytes, fibrin and serum, and is sterile. Because of its presence in such cases, they are frequently described as hypopyon keratitis.

The ulcer may spread in all directions, until the whole cornea is involved, and at any time in its course it may cause perforation and prolapse of the iris.

The membrane of Descemet seems to be more resistant than the rest of the cornea, and in cases of deep ulceration may present as a little pearly cyst in the floor of the ulcer, known as Keratocele, resisting for a considerable time the ulcerative process.

If healing finally takes place, a scar more or less dense occupies the site of the ulcer, and this being opaque may seriously impair vision especially if it is centrally placed over the pupil.

In addition to the appearance of the cornea itself, the eye presents marked circumcorneal injection and sometimes oedema of the conjunctiva. The pupil is sluggish and contracted, and the iris is discolored, showing that that structure is also involved in the inflammatory process. There may or may

not be considerable pain in the eye, but photophobia and lacrimation are usually marked.

The prognosis is always grave. There is certain to be an extensive opacity at the site of the ulcer, and if this is centrally placed the pupil will be covered by it and sight very much impaired.

The involvement of the iris may result in adhesion between iris and lens and occasion glaucoma. Perforation of the cornea might allow the entrance of the disease germs to the interior of the eye and cause panophthalmitis.

Even after healing of the ulcer, a dangerous sequel may develop, namely staphyloma of the cornea. The scar from healing being weaker than the normal cornea, yields to the intraocular tension and a bulging occurs at this point. This may increase and necessitate the removal of the eyeball.

Treatment:

Careful and thorough disinfection of the conjunctival sac with slightly warmed bichloride of mercury solution, 1-5000 should be practiced after any suspicious injury or abrasion of the cornea.

Pressure over the lacrimal sac will determine whether or not there is any retained secretion there, and if so, this cavity should be regularly and thoroughly irrigated with the lacrimal syringe, a solution of bichloride 1-5000 being used.

The edges and outside of the eyelids and also the surrounding parts of the face should be kept clean with the same solution, and the patient should be warned not to touch his eye with dirty fingers or soiled handkerchief. A bandage should be applied with enough cotton over the eye to keep the lids firmly closed. This prevents irritation of the eye by constant winking and so allows healing of the wound. If it appears that infection of the wound has already occurred, irrigation of the conjunctival sac should be practiced every two hours and the bandage replaced after each treatment.

Atropin is valuable in that it dilates the pupil, thus preventing posterior synechiae, and secures rest to the eye by paralyzing accomodation. In some cases atropin can not be used as there is apt to be increased tension. In such, eserin or pilocarpin is indicated.

Hot applications to the eye by means of cloths wrung out of water as hot as can be borne and frequently changed, are of the greatest value.

To accomplish the most good, the cloths should be quickly changed every half minute, or minute, and the applications continued for half an hour. Heat thus applied three times a day influences markedly the circulation of the eye, relieves the congested vessels and lymphatics, and promotes absorption of the inflammatory products.

Should the ulcer show signs of progressing, this should be promptly checked by cauterization of the advancing border. This is best accomplished with the galvano cautery, a fine tip being heated to a red glow. Or a small tip of the thermo cautery may be used in the same manner. If these instruments are not at hand, the floor and sides of the ulcer may be cauterized with pure carbolic acid or with a 12% solution of nitrate of silver applied with a very delicate cotton applicator. Care should be taken not to let any excess of fluid run over the healthy cornea. The cauterization by any method may be facilitated by first dropping into the eye an alkaline solution of fluorescein (1%) which distinctly outlines the ulcer by staining it a bright green, whereas the normal cornea remains uncolored. Cauterization of the border of the infectious ulcer when properly done is the most valuable treatment that can be practiced, and effectually checks the spread of the disease in most cases.

If there is considerable hypopyon, paracentesis of the anterior chamber may be done through the lower part of the cornea. Such a procedure is more positively indicated if the tension is slightly increased. Through the wound the pus escapes, but rapidly accumulates again unless the wound is opened each day.

Finally the general nutrition of the patient must be looked to very carefully. I regularly give a calomel purge in such cases,

and follow it with some tonic in which quinine figures. A nutritious but plain diet is also indicated.

The disfiguring scar that frequently remains after a severe ulcer, may be very satisfactorily concealed by tattooing; and if the scar is centrally placed so as to obscure the pupil, an artifical pupil can be made by an iridectomy behind some clear portion of the cornea.

I should like to emphasize the importance of thorough cleansing of the lacrimal sac in these cases, for it is here that the source of infection is so frequently found. The stricture of the nasal duct that causes retention of fluids in the lacrimal sac, should be dilated so that there may be natural drainage. If this can not be accomplished satisfactorily the sac should be completely excised and the mucous membrane of the nasal duct destroyed so as to obliterate that canal. In cases of obstinate lacrimal disease, in poorer individuals whose occupation renders them liable to injury of the cornea, I am satisfied that excision of the lacrimal sac and nasal duct is a wise measure for the prevention of infectious ulcer of the cornea.

To recapitulate, infectious ulcer is a serious lesion of the cornea which is most frequently caused by the pneumococcus gaining entrance through a wound of the epithelium. The pneumococcus may be present in the retained secretion in the lacrimal sac. Prompt recognition of the infective nature of the lesion, and active treatment at the beginning may do much toward saving the eye. Cauterization of the ulcer should be practised if the ulcer shows signs of progressing. Finally, in obstinate cases of lacrimal disease, excision of the lacrimal sac, is a wise preventive measure.

193 State Street.

ACUTE PANCREATITIS WITH REPORT OF A CASE.*

BY F. A. GUTHRIE, M. D., LA SALLE.

The comparative rarity of this condition, or at least the recognition of it, has made impossible the same amount of research and clinical experience as in most other diseases and conditions of the human body. It has only been within the past few years that diseases of the pancreas have been recognized, and it is a deplorable fact that today, the most of the cases are discovered post-mortem.

Fitz in 1889 was the first to call attention to the distinctive characteristics of pancreatic disease. Since that time, investigation along that line has become more general, and foremost among these investigators are Opie, Korte, Hildebrand, Balser, Mikulicz, Dettmer, and others.

For a number of years the etiology of this condition was very little understood. It occurs much more frequently in men than in women, and usually between the ages of 20 to 65. Alcohol seems to be an important causative factor, and the patients are usually fat. There is often the history of dyspepsia, with attacks of pain in region of stomach, and vomiting; dating back some times for years. Opie, of Baltimore, and others, have advanced the theory recently that the great majority of these cases are caused by gall stones.

He has demonstrated the existence of gall stones (either in gall bladder or common duct) in a great many cases, dying of pancreatitis. Owing to the intimate anatomical association of the common bile duct, and the duct of Wirsung, a gall stone impacted in the diverticulum of Vater causes regurgitation of bile into the pancreas. The pancreatic and common bile duct open into the duodenum in common in about 90% of cases. Other concretions, and malignant diseases may act in the same way as gall stones.

Opie has demonstrated that the injection of bile, into the pancreatic duct of the dog, will cause hemorrhagic pancreatitis, and death within a few hours. Upon post-mortem examination all the pathological finding of pancreatitis are present. Other irritating substances, as various acids, artificial gastric juice, alkalies, etc., injected into pancreatic duct, will produce the same effect. Some writers claim that regurgitation of hyper acid gastric juice into the pancreatic

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duct may account for some cases. This is not at all impossible when we remember that the duct opens into duodenum, about four inches below pyloris.

Opie reviews 42 cases, that were associated with gall stone. In eight of these the stone was found in the common bile duct and diverticulum of Vater, in the remaining cases it is not stated whether they were in the duct or only in gall bladder. A large percentage of these cases showed jaundice. Kroft[1], reports 10 cases with gall stones in only two. W. J. Mayo[2], reviews 13 reported cases, 10 of which were associated with gall stones. Munroe[3], gives nine cases, two with gall stones. Rixford[4], reports three cases, all with gall stones.

The pathological findings in acute pancreatitis are enlargement of the gland, with deep congestion and hemorrhage in the gland tissue. This congestion extends to the neighboring tissues to a certain extent, and presents almost the appearance of gangrene. When hemorrhage is severe and condition has lasted for any length of time, gangrene is present. Another condition that is almost always present, and considered pathognomonic is fat necrosis.

This was first described and associated with pancreatic disease by Balser in 1882, and is often called the fatty necrosis of Balser. These are peculiar milliary like, white or yellowish specks, varying in size from a pin head to a small pea, scattered around the roots of the mesentery and omentum, in region of pancreas. There are sometimes found over entire abdominal cavity. Langerhans has shown that these changes within the fat cells are due to the splitting of the fat molecule into its fatty acid and glycerine. The glycerine becoming absorbed, leaves the fatty acids to combine with the calcium and sodium salts of the tissues. There is still some question as to the cause of fat necrosis, and several theories are advanced. At first the investigators tried to place the blame on micro-organisms, and found different bacteria in the necrotic spots in many instances. The most common one found in these cases being the bacillus coli communi. The evidence did not bear out the bacteriological theory, so it has been practically dropped.

The fat necrosis being found usually in close proximity to the gland, suggested that it was due to its own products. Investigators injected pancreatic juice into the abdominal cavity and fat with slight success. Hilderbrand and Dettmer ligated the gland in a number of cases and produced fat necrosis in a fair proportion. Ligating the veins and cutting off blood supply, produced same results in some cases. In these, however, the condition was only found in the immediate vicinity of the gland, and not general as it often is in the human. Opie experimented on cats, and tied both ducts of the gland with two ligatures on each; cutting between them. He then sewed the omentum over the cut ends of the ducts.

The cats lived from 1 to 25 days, and when examined showed fat necrosis extending more or less over entire abdomen; and even on fat of pericardium in one case. The longer the cat lived after the operation the more extensive was the process. The evidence which we have here, practically proves that fat necrosis is due to the action of the products of the pancreatic gland on the surrounding fat. It is a well known fact that the pancreas is often found on post-mortem, to be partially or wholly digested, but in these cases fat necrosis is not present.

Self digestion has taken place immediately after death without effecting the surrounding fat. Thus we further prove that fat necrosis is produced by the action of the fat-splitting ferment of pancreatic juice, only on living fat. Anything that causes obstruction of the duct, or hemorrhage into the gland, produces a condition which causes the escape of pancreatic fluid, and we have acute pancreatitis, and fat necrosis. This bears the same relation to pancreatic obstruction that jaundice does to obstruction to the common bile duct.

The symptoms of acute pancreatitis are severe pain in the upper part of abdomen with vomiting. There is great oppression and anxiety, faintness with tendency to collapse. There is often history of constipation for two or three days. Pain not relieved

by the ordinary remedies. Often give history of previous attacks of pain and vomiting, or of having stomach trouble for long time. The vomiting may be projectile and very much larger quantities than can readily be accounted for. Tympanitis is marked. Heart soon shows signs of failure, collapse comes on, and death occurs sometimes in a few hours after the first symptom.

It may be mistaken for internal obstruction intussusception, acute peritonitis, perforating ulcer of stomach, or gall stones.

The treatment of this condition is still somewhat of an open question. Some writers advocate the expectant plan, while others immediate surgical treatment. Pels Lensden reports three cases treated by simply opening the abdomen under cocaine and draining. Two of them were moribund at time of operation and they recovered. This certainly is all that can be done in the acute stage in first few days, as there is so much shock that any more extensive operation would not be justifiable. Some authors believe in waiting until after the first three or four days, and then operating; among these are Mikulicz, and Woolsey of New York. The chances for recovery are fairly good after the first three days even without an operation. Bloodgood reviews the results after looking up all reported cases. There are 75 cases reported, and of these 25 recovered, 13 of them after being operated on during acute attack. Leaving 12 who recovered without operation. Of the 50 that died, 23 were operated on during acute attack, and 27 were not operated on.

To sum up:

Operated upon during acute attack	36
Recovered	13
Not operated on	39
Recovered	12

This shows the balance a little in favor of operation.

The case which I wish to report is the following: May 18, 1900. C. E. D., Male, age 31, height 5 ft. 10 or 11 inches. Weight about 240lbs. Member of a minstrel troup. Sent for me hurriedly about 5 P. M. He gave the following history: Had not felt well for a couple of days, but had taken his part in troup right along, and had marched in their parade about noon. He said he had been quite a drinker for several years, but had been drinking harder than usual past two months. Said he had stomach trouble for a year or two, attacks of vomiting and pain which would last three or four days, and pass off. I found him with severe abdominal pains and vomiting, pulse and temperature normal. Bowels had not moved for two days. Administered morphine hypodermically, Mag. Sulph. to relieve bowels, put him to bed.

In an hour no relief from pain, and vomiting very severe; which would come on so suddenly that he could not raise up in bed quick enough to get the vessel. Much tenderness in upper part of abdomen and tympanitis. More morphine hypodermically. Two hours later no relief but getting worse, suffering intolerable, anxious and restless, knew he was going to die. Still vomiting, but vomit had changed in character. It was full of a dark substance which looked more like old dusty cobwebs, than anything else that I can compare it to. It was not blood, as it was not black enough, and was in fine shreds, and it was not feces. Pulse still normal. Gave more morphine hypodermically, which gave no relief.

At 11 P. M. condition getting worse, pain more severe, vomiting, and heart beginning to show signs of failure. His symptoms became more alarming from this time on. Used stimulants hypodermically, but he grew worse gradually, shock becoming more severe, and he became moribund and died at 3:30 A. M. ten hours after I first saw him.

As I had at first made a diagnosis of intestinal obstruction, and finally none at all; for he would not die so soon from that cause. I was anxious to find out what killed my patient. I succeeded in getting a post-mortem, but was only permitted to examine the abdominal cavity. I found no obstruction of the bowels, or any perforation of them. The liver was quite a good deal enlarged and fatty. Stomach normal, except much congested at the back, in region of pancreas. The pancreas was enlarged, and very much congested, almost gangrenous, and

the root of the messentery and omentum in that vicinity showing interstitial hemorrhages.

There was no fat necrosis in this case, which I think is explained by the fact that he was sick such a short time, that the ferment from the pancreatic juice did not have sufficient time to produce its effect. Gall stones were not found; as I did not examine carefully for them at that time.

Reference.

1. Journal American Medical Association, Volume 33, Page 1605.
2. Journal American Medical Association, Volume 39, Page 808.
3. Journal American Medical Association, Volume 39, Page 809.
4. Journal American Medical Association, Volume 39, Page 809.
5. International Clinics.

LUMBAR PUNCTURE: ITS VALUE IN DIAGNOSIS AND TREATMENT.*

BY E. P. COOK, M. D., MENDOTA.

Although puncture of the spinal meninges was first employed by Quincke in 1890 for the relief of the intracranial pressure in tuberculous meningitis, general attention was not attracted to the procedure until 1895, when Furbringer reported the striking results obtained in a series of cases in which he had resorted to lumbar puncture for diagnostic rather than therapeutic purposes. Since then the field of application of lumbar puncture has been greatly extended, and at the present time it has become an established operation for diagnosis and only in less degree a recognized means of treatment.

The technique of spinal puncture is simple and the procedure when aseptically performed is practically free from danger. Pfaundler reported two hundred lumbar punctures without a single bad result. In one case only of his series was there collapse, due to the removal of an excessive amount of fluid. Northrup noted no ill effects in fifty cases. Gumprecht in 1900 collected fifteen cases of sudden death following lumbar puncture and added two cases of his own, but he failed to definitely connect the untoward results with the operation itself. Those observers who have had the largest experience with the operation are agreed that when properly performed it is harmless.

As a result of the extended use of lumbar puncture careful studies have been made of the cerebro-spinal fluid *intra vitam*. These investigations have thrown a flood of light on many hitherto obscure problems in the pathology and etiology of affections of the cerebro-spinal meninges and have modified our views regarding certain acute and chronic diseases in which these structures are involved. Although the diagnostic value of lumbar puncture far exceeds any therapeutic value yet discovered for the procedure, it is nevertheless a welcome addition to therapeusis in a field where the resources at our command are yet very meagre.

The normal cerebro-spinal fluid is perfectly clear. Sicard, Widal and others have shown that in health it contains scarcely any cellular elements; there is an entire absence of polymorphonuclear leucocytes and the small mononuclear cells or lymphocytes are very scanty if present at all. Albumin is present as a faint trace (0.02% to 0.04%) and there is no fibrin. Sugar is normally present, but according to Pfaundler, sugar disappears in acute inflammatory disease of the meninges. This observation, however, lacks sufficient confirmation to be of diagnostic weight. The amount of fluid allows of no definite conclusions, except that a great amount of fluid as shown by very high pressure is most frequently met with in tuberculous meningitis. An increase in the albumin (more than 0.05%) in the absence of blood, points to tumors or inflammatory disease and a considerable excess of albumin in a clear fluid, according to Pfaundler, is almost a certain sign of tuberculous meningitis.

Wentworth states that in meningitis the withdrawn fluid is invariably cloudy. The degree of cloudiness, however, depends on the number and character of the cells in the meningeal exudate. It is sometimes so slight as to be detected with difficulty. While therefore marked changes in the gross ap-

*Read at the 54th Annual Meeting, May 17, 1904.

pearance of the fluid are of suggestive value, reliance should only be placed on a complete microscopical and bacteriological examination. The necessity of thorough examination is emphasized by the experience of Barr who reported cases of purulent meningitis in which puncture showed a clear fluid. A cardinal rule in estimating the results of lumbar puncture has been insisted on by Hand who declares that positive results only are of diagnostic value; it is unsafe to draw any conclusions from negative findings. For example, although the demonstration of tubercle bacilli in the fluid constitutes a positive diagnosis of tuberculous meningitis, failure to prove their presence does not necessarily exclude the disease. Occasionally fluid may not be obtained. This failure is usually due to faulty technique, but rarely it may result from the thick, waxlike character of the exudate as in a case mentioned by Packard in which the diagnosis was proven by post mortem examination.

An admixture of blood in the spinal fluid may be accidental from the operation. Such an explanation is excluded when repeated punctures show persistence of the same amount of blood. The stage of the disease in which the puncture is resorted to must always be considered. Puncture made late in the attack may fail to show changes which were pronounced at an earlier period.

The bacteria most frequently found in the cerebro-spinal fluid are the tubercle bacillus, the meningococcus intracellularis of Weischselbaum, the pneumoccus and the streptococcus and staphylococcus. The tubercle bacillus can usually be demonstrated in the sediment by the ordinary staining methods. By direct examination of the coverslips in this way Pfaundler found tubercle bacilli in 91% of the cases where they were present. Rarely inoculation experiments may be required to make a diagnosis in tuberculous meningitis on account of the scarcity of the microorganisms. Cultures are usually necessary for the proper identification of the meningococcus, pneumococcus and ordinary pus cocci. As pointed out by Councilman, the meningococcus may vary greatly in numbers. Usually they are readily found and in abundance. When present in small number they may be missed on the coverslips, and even when present in large number the culture tubes may show only one or two colonies. The demonstration of the meningococcus is positive proof of the existence of cerebro-spinal meningitis of the epidemic type. In fifty-five cases of meningitis in which lumbar puncture was made, Councilman found the meningococcus in thirty-eight cases. He states that the cocci are most constantly present early in the disease, i. e., at a time when the diagnosis is most difficult from the symptoms alone. The identification of the meningococcus is also important from a prognostic standpoint as these are the only cases in which recovery is likely to occur. Osler states that the pneumococcus cases are invariably fatal.

Cyto-diagnosis, or the study of the cellular elements in the fluid, has yielded some interesting and valuable results. As already stated, normal cerebro-spinal fluid contains few or no cells. In diseased conditions, leucocytes of one type or another may appear in greater or less abundance. The number of cells will determine the degree of cloudiness of the fluid while the type of cells which preponderates will furnish information as to the nature of the infective agent. Generally speaking, the presence of the large polymorphonuclear leucocytes is indicative of an acute microbic invasion of the meninges, while the small mono-nuclear lymphocytes are found in the subacute and chronic affections and especially in the tuberculous form.

In purulent meningitis there is polymorphonuclear leucocytosis and the lymphocytes are scanty. A lymphocytosis is met with in tuberculous meningitis. The explanation of these findings is interesting. The polymorphonuclear leucocytes are cells of the highest phagocytic capacity and therefore appear in the onset of an acute bacterial infection. The lymphocytes being of inferior resisting power occur in the subacute inflammations of which tuberculous meningitis is a good example.

Lymphocytosis of the cerebro-spinal fluid has also been noted in certain chronic toxic

affections, and especially in tabes and general paralysis. In the latter affections, lymphocytosis is the rule, positive results having been found in 116 of 125 cases of these two diseases, which were reported to the Neurological Society of Paris in March, 1903.

Care is necessary, however, in cyto-diagnosis. A case reported by Pighini illustrates an interesting fallacy. A diagnosis of a tubercle process was made where subsequent recovery suggested an error in diagnosis. He explains the mistake thus: Cyto-diagnosis was made too late, a lymphocytosis having already replaced the initial polymorphonuclear leucocytosis excited by the bacterial invasion. Widal also cites an interesting case which, while apparently showing the uncertainty of cyto-diagnosis, proves its accuracy. A patient with general paralysis developed a polymorphonuclear leucytosis due to an apoplectiform attack. A lymphocytosis reappeared with the subsidence of the congestive symptoms.

Cyto-diagnosis of the cerebro-spinal fluid has been attempted in some forms of mental disease and in a number of nervous diseases but with the exception of tabes and general paralysis no definite diagnostic conclusions are justifiable. The cerebro-spinal fluid has been found normal in Freidreich's ataxia, cerebellar hereditary ataxia, multiple sclerosis, syringo-myelia, polyneuritis, poliomyelitis, epilepsy and neurasthenia. Positive changes have been noted in syphilitic meningo-myelitis, lead paralysis, herpes zoster, and in some cases of chorea, but further observations are necessary to decide the exact value of these findings.

In the diagnosis of the intracranial complications of ear disease, lumbar puncture may afford valuable information. Schwartze of Halle has satisfactorily employed the method in his clinic for several years. He says that normal clear fluid excludes diffuse purulent meningitis in cases of otitis presenting intracranial complications. Cyto-diagnosis offers much aid in the differential diagnosis of suspected purulent meningitis and tuberculous meningitis complicating otitis. A considerable increase in the amount of spinal fluid in these cases, according to Schwartze, points to the occurrence of sinus thrombosis.

The field of usefulness of lumbar puncture in treatment is as yet limited. Naturally it has been employed most frequently in the various forms of meningitis but with variable results. Hitherto the treatment of meningitis has been merely palliative or symptomatic. Lumbar puncture is a remedial measure which theoretically at least is reasonable. The symptoms of meningitis are due chiefly to the toxaemia and the mechanical effects of the increased intra-cranial tension. It is rational therefor to conclude that the withdrawal of a considerable amount of inflammatory exudate containing the specific germs in large numbers should exert a favorable influence on the course of the disease. Clinical experience has shown that lumbar puncture is of value in the treatment of meningitis, but it is to be remembered that in a disease like cerebro-spinal meningitis which is apt to present a casual remission of symptoms and signs, very great care is necessary in drawing conclusions regarding the value of any single remedy. Koplik has reported five cases of meningitis in children in which lumbar puncture was done with four recoveries (the fatal case occurring in a child aged eight months). Relief of the symptoms due to the pressure and toxaemia followed the tapping which was repeated according to the indications in each case, most of the cases being tapped three times in the course of the disease. In view of the fact that we have no specific remedy in cerebro-spinal meningitis, I believe that every case of the disease should be given the benefit of repeated lumbar punctures, because this line of management is rational and has shown the best results so far recorded.

Bochard reports several cases of head injury in which the escape of a small amount of the cerebro-spinal fluid aroused the patient from stupor and hastened recovery. Marie and Gullian noted relief of headaches of syphilitic origin, following lumbar puncture. Recently Babinski has recorded eight cases in which lumbar puncture was

resorted to for the relief of symptoms incident upon chronic aural catarrh. The patients were invariably relieved of the subjective noises and the deafness was markedly improved, in some cases permanently. In chronic hydrocephalus lumbar puncture produces temporary improvement, but it is not curative. This is the conclusion arrived at by Raczynski after testing the method in twenty-six cases of hydrocephalus.

The withdrawal of a small amount of cerebro-spinal fluid by lumbar puncture preliminary to the subarachnoid injection of antitetanic serum in tetanus has been frequently done of late. It is the most effective simple method of exhibiting the antitoxin in this disease. In July last I saw a case of acute tetanus in a boy of twelve years on the 4th day of the attack, which followed a pistol wound of the palm of the hand, 20 c.c. of cerebro-spinal fluid were removed by lumbar puncture and 15 c.c of antitoxin injected into the spinal canal. No effect was produced on the course of the disease which rapidly terminated fatally.

The rôle of lumbar puncture in the method of subarachnoid cocainization for anaesthesia is chiefly of surgical interest.

In conclusion, I wish to present two illustrative cases in which lumbar puncture was employed:

Case I. Young negro, aged 16. First consulted me April 12, 1902, giving a history suggestive of incipient lung disease. Examination was entirely negative except for a few faint râles in the right apex after coughing. The lymphatic glands were normal. Temperature 100.6° F., pulse 116, respirations 18. Sputum examination was twice negative. Repeated examinations of the sputum, which was scanty and obtained with difficulty, finally showed a very few tubercle bacilli.

On May 1st, careful examination of the chest failed to reveal any physical signs of disease. Temperature was 100.8° F., pulse 120, respirations 18. Two days later there was sudden onset of vomiting which persisted for forty-eight hours, and was followed by severe headaches, chiefly frontal. Pain developed in the back of the neck and there was rigidity of the cervical muscles. The patient remained mentally clear, but very restless, rolling about in bed. The pulse rate fell to 52, full and regular, with a subfebrile temperature. The urine showed a trace of albumin, several hyaline casts and a few red blood cells. No ocular changes were noted. Moderate delirium slowly developed, gradually passing into coma. The pulse rate remained slow finally rising to 84, with normal temperature and respiration just before death, which occurred in coma, May 16, 1902. Lumbar puncture was made post mortem and 15 c.c. of clear fluid removed. A few tubercle bacilli were found in the centrifuged fluid, thus confirming the clinical diagnosis of tuberculous cerebro-spinal meningitis supervening on incipient pulmonary tuberculosis. Cultures on blood-serum were negative.

Case II. School girl aged 10. Seen in consultation Feb. 6, 1903. Onset of attack was sudden two days before with headache and vomiting. Examination showed pulse 92, temperature 104° F., respiration 32, irregular of Cheyne—Stokes type. Patient lay in coma, on the left side with the limbs drawn up. Head retracted and muscles of neck rigid. Herpes labialis marked. Eyes and ears negative. No facial paralyses. Heart, lungs and skin normal. Kernig's sign distinct. There was slight paralysis of right foot, producing inversion and flaccidity. The urine contained considerable albumin and a few hyaline casts. Lumbar puncture was performed and 20 c.c. of clear fluid withdrawn. Coverslips were negative. Cultures on Löeffler's blood serum showed diplococci in pure growth, resembling morphologically the menigococcus. Following the lumbar puncture there was slight but gradual improvement in the symptoms. The coma persisted for nearly two days, gradually disappearing. On Feb. 11, 1903, the temperature was normal and convalescence established. Subsequent recovery was rapid and there were no sequelae. Aside from the lumbar puncture the treatment was purely symptomatic.

Discussion on Dr. Cook's Paper.

Dr. E. C. Franing, Galesburg: If we had a case of fluid in the peritoneal, pleural or any

other cavity, we certainly would not hesitate to aspirate for diagnostic purposes. And this is much more important when we have fluid in the spinal canal, because there we have, in the first place, a bony canal, which is unyielding to any amount of pressure, and second, contained in that cavity is one of the most vital and important organs of the body. For that reason, if for no other, it is important that the condition should be relieved.

It seems to me that there is nothing more rational than lumbar puncture; therefore, I consider this one of the best papers read before this section.

In this connection I want to report, briefly, two cases. The first was a case of tubercular meningitis, which was relieved greatly by lumbar puncture. The second case was one of a shot into the hand. Tetanus developed on the fourth day. I operated, removing the foreign body from the hand, but without obtaining any relief. The temperature continued and went up to 106° F. Tetanus antitoxin had been used, but in too small amount. We did a lumbar puncture, withdrew some of the fluid, and injected 20 c.c. of tetanus antitoxin, which was followed by quite marked amelioration of the symptoms within twenty-four hours, and from that time on the boy continued to improve steadily and finally got well.

I read in some medical journal recently, the name of which I cannot recall, of several cases in New York where lumbar punctures were made in cases of uremia following nephritis, and in every case, in a series of twelve, the patient regained consciousness while the needle was in the spinal canal. It seems to me that such cases as these prove the value of lumbar puncture. On theoretical grounds, at least, lumbar puncture is suggested in such cases.

Dr. John F. Sloan, Peoria: I wish to report two cases of tetanus occurring in my practice in 1902, and treated by lumbar puncture and injections of antitetanic serum. The first, a boy 16 years old, developed symptoms of tetanus on the eighth day after the injury was inflicted. On the morning of the ninth day I withdrew about 20 c.c. of the cerebrospinal fluid by means of a lumbar puncture and injected an equal amount of tetanus antitoxin. This was repeated twice daily until 150 c.c. of serum had been injected. Then the irritation about the point of puncture necessitated continuing the injections subcutaneously. After the second injection the symptoms did not increase, although they remained stationary for several days. On the tenth day the patient developed a lobar pneumonia, and six days later a nephritis with complete suppression of the urine.

After being comatose for about forty-eight hours he began to improve, and at the end of about six weeks he was discharged completely cured.

The second case occurred in a man, in which the incubation period might have been six weeks because he was operated six weeks before I saw him, and he was injured two weeks before the operation. It was a very mild case. We injected 60 c.c. of the serum in the course of a few days. One point of interest in this case was that after the symptoms had subsided we stopped injecting the serum for about two days, but continued the use of bromides and morphine, occasionally, and chloral, but in spite of these remedies the tetanic convulsions recurred and we again had to resort to the use of the serum, which within eight or ten hours caused all the symptoms to subside.

In these cases we also curetted the site of the injury and packed the wound, part of the time, with gauze saturated with peroxid of hydrogen, and part of the time with some of the serum left over from the injections.

Both these patients made a perfect recovery, and have not had any recurrence of the convulsions up to the present time.

Dr. Cook (closing the discussion): I wished in my paper to direct more particular attention to lumbar puncture as an additional diagnostic measure, and also as being of value in the treatment of inflammatory diseases of the cerebrospinal meninges.

The question of the subarachnoid injection of antitetanus serum, depends rather on getting the serum immediately in contact with the affected tissues, rather than upon the method of lumbar puncture itself. And the value of the serum as a remedial agent depends on the serum itself rather than on the mode of exhibition.

Lumbar puncture has opened up another part of the body to more accurate diagnosis, and therefore it is a measure that should be used more extensively. The exact status of the method has not yet been determined, but the results obtained thus far warrant a further study of the method.

NEW INCORPORATIONS.

The Secretary of State at Springfield has issued licenses to the following:

Crary Chemical company, Chicago; capital, $5,000; manufacturing proprietary medicines; Charles M. Foell, H. S. Gemmill, J. R. Perry.

Washington Park hospital, at Chicago; capital, $50,000; conduct a sanitarium; incorporators, G. Edwin Sandstedt, John W. Swanstrom, George E. Q. Johnson.

Harvey Medical College Alumni association, Chicago; not for profit, fraternal purposes; Frances Dickinson, Frank M. Tebbetts, Susan I. Moody.

Royal Sanitarium of Chicago, Chicago; capital, $25,000; maintain a sanitarium; incorporators, Sydney Flower, Richard J. Mulroney, Charles S. Knudson.

The Illinois Medical Journal.

The Official Organ of the State Medical Society.

AUGUST, 1904.

NEXT ANNUAL SESSION, ROCK ISLAND, MAY 16, 17, 18, 1905.

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THE MEDICAL PROFESSION AND THE STATE INSTITUTIONS.

On page 276 we give place to a paper prepared for the 59th annual session of the Ohio State Medical Association by Dr. A. P. Ohlmacher, of Gallipolis, Superintendent of the Ohio State Hospital for Epileptics. We commend the reading of this paper to every member of our State Society. Dr. Black in his Presidential address gave voice to much the same sentiment as Dr. Ohlmacher upon this subject.

Conditions in Ohio, we happen to know, are much better than in Illinois and yet they are not ideal there and can never become so in either State until the Medical Profession is aroused to do its full duty by the State Institutions. As Dr. Ohlmacher well says "So long, however, as the Medical Profession by its inactivity or indifference, countenances political intervention in the Medical Institutions of this State, so long will this regime continue and so long will the Medical Scientific work be hampered or restricted." Dr. Ohlmacher again well says "The profession owes this obligation not to itself alone but to the great public which must look to the Medical Profession for advice and guidance in this, as in other questions of Medical Sociology."

Dr. Ohlmacher is a reader of the Illinois Medical Journal and refers to the agitation which we have been making to bring about

a re-organization of the State Institutions of Illinois.

THE MEDICAL MAN'S VACATION.

The Editor of the New York Medical Record in discussing this subject concludes that the city practitioner should at least once in a year seek seclusion from the noise and turmoil of city life by an ocean voyage or a visit to the country. The country doctor on the contrary can best employ his time by a visit to the city. His most sensible statement is that perhaps there is no more healthful and pleasant mode of taking a holiday for the country practitioner than attending the meetings of the American Medical Association and of his State and County Medical Society. Such communion is of inestimable advantage in many ways; he receives new ideas, and some of the rust which is gathered upon him in his necessarily contracted sphere of life is rubbed off. Over and above these advantages the mixing in the social life of his equals, denied him to a great extent when at home, tends to enlarge his views. The unaccustomed stir and bustle of the town or of the pleasure resort in which the meetings are held stimulate his faculties, dulled by the monotonous routine of his daily toil, and elevate his entire being, so that he goes back to his work like a giant refreshed. The feminine part of his family can also participate in the social amusements which are a part of present day Medical Meetings with equal benefit.

MISSOURI ADOPTS THE JOURNAL IDEA.

The Missouri State Medical Society at its last session decided to publish its transactions in the form of a monthly Medical Journal entitled The Journal of the Missouri State Medical Association. The initial number appeared July 1. Dr. C. M. Nicholson is editor and he is assisted by Drs. C. Lester Hall, F. J. Lutz, Woodson Moss, M. P. Overholser, Robt. T. Sloan, and L. A. Todd. The Journal idea is being rapidly adopted by the various State Medical Societies. Ohio will undoubtedly adopt the idea which has been before the Society for discussion at its last two sessions. New Jersey is about to journalize its transactions. The State Societies now issuing their transactions in Journal form, are Illinois, Pennsylvania, Kentucky, Wisconsin, Missouri, Mississippi, Nebraska, Kansas, Colorado, California, Michigan.

A meeting of the Editors of the State Society Journal was held in Atlantic City during the sessions of the A. M. A. and we are informed that the Secretary of this meeting, Dr. Bullitt, of Louisville, is about to issue a circular letter to the various Journals outlining the objects of the Association.

CHICAGO CLEANLINESS.

Our great metropolis of which every citizen of Illinois has such reason to be proud, is proving herself capable of becoming and remaining clean. For years the filthiness of the down town districts has been a source of criticism from visitors and a source of grief to the citizens. Finally matters became so bad that it became absolutely necessary to make a change. The merchants grappled the problem and imported an expert from New York to superintend the "white wings," organized after the system so long in vogue in the East. The results of this work are now becoming apparent and a visit to the city recently revealed such a change that we consider it worthy of remark. Of course if one part of the city can be made and kept clean all other parts can. A concerted movement by residents and property owners would undoubtedly bring about this universal house cleaning so much to be desired and result in making the city still more remarkable for its low death rate.

SCANDAL AT THE ELGIN INSANE HOSPITAL.

Attendants recently discharged from the Northern Hospital for the Insane at Elgin have made sworn statements charging inhuman treatment of patients resulting in many cases in death. The Elgin Trades Council took up the matter and sent the Governor a petition asking a rigid investigation of the affair. Supt. Frank S. Whitman made reply immediately denying the truth of these charges and insists that if the alleged evil did exist that they were so covered up by the men who are now making the charges that they escaped his notice and that all except one of the patients named in the affidavits died in years past. The daily press has taken up this matter and has severely critiscised the formation of a union among the attendants of the different State institutions. At the same time they demand an immediate and impartial inquiry of the charges made. It is probable that nothing will come directly from this investigation, but it is to be hoped that this and similar scandals which have arisen in recent years will result in bringing about a form of civil service in the State institutions in the near future.

SPECIAL TUBERCULOSIS ISSUE.

The papers read before the State Society at its last meeting on Tuberculosis will appear in the September issue of the Journal. It was thought best not to print the important papers forming the symposium on Tuberculosis during the vacation period, but to issue it in the fall when all physicians in the State have returned from their vacations, prepared to take up the active work of eradicating the white plague from the calendar of diseases.

"A" MISTAKE.

The title of Dr. Hollister's excellent eulogy of Dr. Nathan Smith Davis was badly marred by error of the printer who misconstrued a mark on the final proof and thereby greatly mangled the latin which should have read: In Memoriam Patris Societatorum or auglicized, In memory of the father of societies.

Correspondence.

Treasury Department.
Bureau of
Public Health and Marine Hospital Service,
Washington, D. C., June 29, 1904.

A board of officers will be convened to meet at the Bureau of Public Health and Marine Hospital Service, 3 B Street, S. E., Washington, D. C., Monday, October 3, 1904, at 10 o'clock a. m,. for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine Hospital Service.

Candidates must be between twenty-two and thirty years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character.

The following is the usual order of the examinations: 1. Physical. 2. Oral. 3. Written. 4. Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital and when practicable, candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainment on examination, and will be commissioned in the same order as vacancies occur.

Upon appointment the young officers are, as a rule, first assigned to duty at one of the large hospitals, as at Boston, New York, New Orleans, Chicago or San Francisco.

After five years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Promotion to the grade of surgeon is made according to seniority, and after due examination as vacancies occur in that grade.

Assistant surgeons receive sixteen hundred dollars; passed assistant surgeons, two thousand dollars, and surgeons, twenty-five hundred

dollars a year. When quarters are not provided, commutation at the rate of thirty, forty, and fifty dollars a month, according to grade, is allowed.

All grades above that of assistant surgeon receive longevity pay, ten per centum in addition to the regular salary for every five years' service up to forty per centum after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For further information, or for invitation to appear before the board of examiners, address

Surgeon General,
Public Health and Marine Hospital Service,
Washington, D. C.

Death From Poisoning by Methyl Alcohol. The Learned Coroner.

Barry, Ill., July 10, 1904.

At 3 o'clock on the morning of June 30th, I was called to see O. P. Bradshaw, at the home of A. Messick, near Barry. I found him dead. Bradshaw was the county agent for the "Dr. Reeder Family Medicine Co." of Peoria. I found upon inquiry that he was in the habit of taking some of "Dr. Reeder's Pure and Unadulterated Jamaica Ginger" for a stomach trouble. Bradshaw arrived at the home of Messick at 5 p. m., June 29th, in a semi-intoxicated condition. He had not been able to secure whisky at Barry, and had evidently been drinking some of his Jamaica ginger as several empty bottles were found in his buggy. The train of symptoms were those of methyl alcohol poisoning. I secured a number of samples of the substance and upon analysis was not surprised to find that it was made with methyl alcohol. A coroner's inquest was held and a verdict given of death from "heart failure." My testimony was not asked and I was not summoned to the inquest. There is no evidence to justify the verdict. The man was 38 years old and apparently in excellent health.

I simply mention all these facts to show that the methyl alcohol evil is still with us in unsuspected forms. You will remember that I brought this matter to the attention of the profession and the Pure Food Commission, last year. I wish also to show that our public officers are as listless as they are expected to be. I will report this case to the State Board of Health and I shall be surprised if I hear from it again.

One is surely justified in thinking that most of our official business is a sham.

I am informed upon good authority—that of a trained nurse in hospital work—that methyl alcohol is used in some of our public hospitals—in the bath and for internal use. When the nurse protested against its use she was informed that "if they use the other alcohol they must pay for it."

It is well to remember the cases of blindness mentioned by me from using methyl alcohol in the bath and the cases reported by Dr. Casey A. Wood from inhaling the substance.

Yours very truly,

R. H. Main.

I might add, as supplementary to my other letter, that in the last ten days the county coroner has held inquests (?) on the bodies of four men who met violent deaths.

One of these confessed to having taken strychnia and that was assigned as the cause of death.

The verdict in the other three cases was death from heart disease. There was no autopsy on any of these cases and apparently no effort made to ascertain the true cause of death in any of them.

If this sort of thing is being permitted throughout the state there is reason to suspect that many cases of methyl alcohol poisoning are passing unrecognized.

The principal function of the coroner seems to be to show that the last disease was mortal.

Yours very truly,

R. H. Main.

Knowledge of Anatomy is Necessary.

Peoria, Ill., July 20, 1904.

To the Editor:

Please allow me, in the interest of public security and professional conscience, to enter an emphatic protest against such an unwholesome inference as that legitimately to be drawn from the last paragraph but one in the article on **Country Surgical Technique,** by Dr. J. A. Baughman, and published in the current issue of The Journal. The statement referred to is as follows:

"A certain knowledge of anatomy (is) as a matter of course necessary. But study the position of the main arteries and you and a haemostatic forceps can easily take care of the smaller ones you find as you sever them."

Now, it strikes me that if that expression means anything definite it means that the author attempts to put a comparatively low estimate upon the practical value of accurate anatomic knowledge in surgical manipulations within the abdomen. "A certain" might generously be interpreted as "a thorough," but when in the next sentence specific reference is made to the necessity for studying the location only of the main arteries, in the manner of an apology for even such requirement, one is instinctively led to the conclusion that "a certain" means "an uncertain" knowledge of all the other anatomic structures and relationships usually considered of at least equal importance in the economy of local adjustments and vital stability. Better no reference to anatomic considerations, than such as merely bear out the declaration of Deaver that "in the surgery of the day a vast amount of anatomic ignorance is concealed under a cloak of antiseptic detail."

To my mind we cannot too impressively demand the most painstaking knowledge of anatomy, physiology and pathology on the part of those who assume to reconstructively invade the sacred precincts of the "human form divine."

I, for one, wish to retain the respect I have for country surgery and country surgeons, and therefore beg to admonish the enthusiastic and zealous not even seemingly to promulgate sentiments so at variance with the best teachings

of science. While one can appreciate the evident desire of the author above quoted to widen the field of usefulness of the inexperienced and the timid, it should not be attempted at the expense of scientific knowledge and subsequent defeat. Let the "main" effort be to insist upon as **complete** anatomic and pathologic conception as the state of science justifies.

Very respectfully,

O. B. Will.

516 Woolner Bldg.

News Items.

Dr. V. T. Lindsay and wife of Springfield are spending the summer in Scotland and England.

The State Board of Health has recently issued a pamphlet for popular distribution, entitled: **The Cause and Prevention of Consumption.**

This will be sent to physicians and others free of charge. Our members should see that a copy is placed in every household where there are tuberculous patients.

The entire family of farmer Fred Laughlin, of Wyanet, Ill., were recently bitten by a dog afflicted with the rabies and were successfully treated at the Pasteur Institute at Chicago.

Dr. Richard D. Dugan of Illiopolis was recently elected president of the village board of health. Several journals have confounded Illiopolis village with Illinois state and announced Dr. Dugan as president of the State Board of Health.

Dr. A. R. Graham of Petaluma, California, formerly of Little York, Ill., has extended his subscription to the Illinois State Medical Journal for two years, stating that it is one of if not the most practical Journals received by him and that he intends to read it as long as he can.

The Supervisors of Peoria County recently entered a protest against the new division of the five counties by which that county is required to send Insane patients to Watertown instead of Jacksonville, a change which it is said involves a great deal more expense and labor.

"King Solomon," a 300 pound clairvoyant of Chicago, who calls himself a Hindoo, but who is declared to be a negro, recently filed affidavits accusing Detective Seargeants J. H. Gallagher and P. S. O'Connell with attempting to secure "graft" from him. He will appear before the trial board. "King Solomon" wears red trousers, gilt and crimson robes, and a crown. He has a white wife and tells fortunes at 232 Michigan avenue.

That Helen Mae Olcott of Chicago gave up home and husband in order that she might become a physician was charged recently in a successful suit for divorce.

George C. Olcott, publisher of a real estate journal, testified they were married in Salt Lake City in 1892. The defendant, he said, had run away from home previously to become a nurse in the Cook County Insane Asylum. Two years ago, he charged, she left 5718 Kimbark avenue, taking their four children, and residing near a medical college.

Olcott, who now lives at 287 Washington boulevard, allowed the defendant to retain the children, whom he will help support.

Dr. A. Belcham Keyes has opened an office at 100 State street (Reliance Building). Hours, 12:30 to 2:00 p. m. Telephone Central 379.

Dr. H. B. Boone of Chandlerville has been elected a member of the Board of Trustees of Eureka College, of which he is a graduate.

The name of Dr. Nathan Smith Davis will be perpetuated by one of the public schools of Chicago, located at California avenue and Thirty-ninth street.

The Alumni association of Harvey Medical College has elected the following officers: President, Dr. Scott T. Petrie; Vice President, Dr. H. Buseman; Secretary, Dr. Blanche Weber; Treasurer, Dr. Victor Pacyna; Sergeant at arms, Dr. G. W. Reis.

Dearborn Medical college in Steinway hall, July 1, graduated its first class. Fifteen men and three women received diplomas. They were: Manuel Alvarez, Edward K. Armstrong, William G. Beek, Robert D. Barclay, William, Peter T. Diamond, Philip A. Graves, Edward D. Gotchy, Gustav E. Henschen, Antonio C. Jacobs, Grace R. Marvin, Samuel Metcoff, Harriet D. Mitchell, George E. Peterman, Charles B. Potter, Joseph C. Sayre, Edward G. Sepple, Lulu Schrager.

Dr. Clarence L. Wheaton who has been practicing in Denver for the last three years has resumed practice in Chicago. Residence, 39 Pine Grove avenue. Hours, 10:00-11:00. Office, 98 State street (Stewart Building, 1:00-3:00 p. m.

Dr. J. H. Porter of Clinton suffered the loss by burglary of clothing, a valuable gold watch and a pocket-book containing considerable money.

Dr. L. L. Leeds of Lincoln is visiting in Kansas.

Dr. James F. Chvatal, a member of the Board of Education of Chicago proposes to have a course in swimming taught in the public schools of that city.

Dr. R. L. Falley of Bible Grove has been nominated by the Republicans of Clay county for coroner.

Mrs. Mary B. Glover Eddy in her address of 1904 to the Christian Science church has uttered the following gems of thought for the guidance of her followers: "We cannot boast

ourselves of tomorrow; sufficient on each day is the duty thereof. Lest human reason becloud spiritual understanding, say not in thy heart sickness is possible, because ones thought and conduct do not afford a sufficient defense against it."

This wisdom "Mother Eddy" has wisely caused to be copyrighted.

The town board of Glen Ellyn, Cook county recently met to determine how it might force **O. E. Miller** to remove his sanitarium from that village. They will attempt to prove that the hotel in which Mr. Miller conducts his sanitarium in connection with Ruskin University is unsafe. It will be remembered that Miller conducted a sanitarium of this sort in the Woodruff Hotel, Chicago which was destroyed by fire three years ago when 14 of his patients perished.

Dr. L. A. Glaze of Grayville, White county, has been made defendant in a suit for $50,000 for the alienation of his wife's affections by John Brechner, Jr., a prominent citizen of that village.

The will of Dr. Nathan Smith Davis of Chicago was recently filed in the probate court of Cook county and disposed of an estate amounting to $39,000. Dr Davis had engaged in the practice of his profession for 67 years.

Dr. George K. Herman of Chicago is Captain of Company K 1st Regiment which recently was encamped for its tour of duty at the camp grounds near Springfield and afterwards visited the World's Fair as a body.

Dr. John S. Sweeney of Chicago recently left that city to visit the Medical Centers of Europe to investigate the emergency hospitals for the Iroquois Memorial Hospital Association. He will be absent about two months.

Dr. Nathan A. Jones, formerly of Mt. Pulaski but now said to be a resident of Decatur has filed a petition in bankruptcy in the office of the clerk of the U. S. District Court at Springfield. He schedules his liabilities at $5,551.35 and his assets at $23.40.

Sharpers who work under the guise of "Doctors." Bankers in central Illinois have been asked to look out for medical swindlers who have been working throughout the State. The writer of the letter is an attorney for a number of victims of fake doctors operating under the name of "The Medical Institute." Among other things he says:

Dear Sirs: A number of men claiming to be doctors have for the last year or so been victimizing farmers in the territory tributory to Chicago by taking their notes in sums ranging from one hundred to five hundred dollars. Strangely enough these notes are usually signed by the wealthiest and more intelligent men of the community, who do not know that they are signing a note.

Dr. Adolph Lorenz of Vienna recently entertained the Anglo-Medical Association of Vienna at his beautiful villa on the banks of the Danube near Altenberg. The Illinois physicians present were W. M. Engelbach, G. A. Gardner, F. G. Harris, J. L. Jacques, O. H. Craft, W. H. Lamborn, G. P. Marquis, F. R. Morton, Brown Pusey, G. W. Parker, H. Schafer and J. I. Wernham. Nearly every State in the Union was represented at the gathering but Illinois led all the rest in numbers.

Dr. E. C. Dudley of Chicago was elected president of the American Gynecological Society at its 29th annual meeting held in Boston, Mass., May 24-25-26, 1904. Dr. Henry T. Byford of Chicago responded to the address of welcome. Niagara Falls, N. Y., was selected as the place for holding the next annual meeting in May, 1905.

Dr. E. E. Brittin late of Pawnee has located at Chatham.

Dr. Adam Szwajkart, 658 North Ashland Blvd., Chicago, has been appointed a member of the West Park Board. Dr. Szwaykart was born in Poland, but is a graduate of the medical school of the University of Illinois.

Dr. C. L. Glenn of Narissa has located in Pawnee.

COUNCIL MEETING.

Regular quarterly meeting of the Council held in Chicago, July 7, 1904.

Present all of the Councilors.

The question of appeals from the action of the local societies by Dr. William L. Rabe, of Dwight, and Dr. H. Preston Pratt, of Chicago came up for consideration.

Both of the above were present in person and represented by counsel. After presentation of the evidence it was ruled in the first instance, that of Rabe, that the matter is wholly within the jurisdiction of the Livingston County Medical Society, and that the Council has no recommendation to offer in relation thereto.

In the second instance it was ruled that the appeal of H. P. Pratt be referred back to the Chicago Medical Society with the request that it hear, his, Pratt's appeal when presented.

Editor Kreider complains of the practice of essayists in giving their manuscript to other publications before the same had been published in the Illinois State Medical Journal.

Relative to the same the following was offered and carried:

It is the sense of the Council that section two, of chapter eleven of the by-laws be interpreted as follows:

No papers shall be read at the annual meeting of the Society or be published in its transactions except upon the assurance of the writer of the paper that the manuscript

shall not be offered to any other publication until the paper has appeared in the Illinois State Medical Journal.

The resignation of Kreider as editor having, been accepted at a former meeting of the Council, a vote of confidence and satisfaction coupled with a request that Kreider continue as editor was moved, seconded and carried. Kreider accepted the same.

The same committee on the management of the Journal last year was continued. Said committee being Black, Will, and Harris. It was moved and carried that this committee be given discretionary power to use its best judgement in furthering and enhancing the best interests of the Journal during the interim of the Council meetings.

It was moved and carried that from now on the Journal shall only be sent to actual members, subscribers, advertisers, exchanges, and for advertising purposes.

The result of the drawing of terms as Councilors is as follows:

For one year, Newcomb, Ensign, Stealy.

For two years, Black, McNally, (Harris hold-over).

For three years, Will, Fyke, and Smith.

Adjourned to meet in Chicago the first Thursday in October, 1904.

E. W. Weis, Secretary.

What May be Accomplished by the Organized Profession Toward Improving the Ohio State Medical Institutions.

By A. P. Ohlmacher, M. D., Gallipolis, Superintendent of the Ohio State Hospital for Epileptics.

Whatever may be the cause, the medical profession is indifferent to the State medical institutions. As a body, the physicians of Ohio take little active interest in the several great medical establishments created and supported by the State. As an organization potent for good in the body politic, the confederation which I have the honor of addressing today has not lifted its voice in the effort to advance the administrative or medical interests of the State hospitals of Ohio. This condition is unfortunate, even lamentable; and it should be corrected, especially when it comes to be realized, as sooner or later it unquestionably must, that these institutions, so potent for great good to humanity and to science, look to the medical profession for their best inspirations and ideals.

One at all familiar with the situation cannot overlook the fact that the unsavory reputation of political interference and indifferent medical work still attaches to our State hospitals, notwithstanding a gradual improvement in recent years. These very features which arouse the distaste said to underlie and explain the profession's apathy can be remedied only by the profession itself. It is the organized medical fraternity which embodies the mechanism essential for relief from these undesirable conditions, providing it no longer shirks its duty and responsibility. So long, however, as the medical profession, by its inactivity or indifference, countenances political intervention in the medical institutions of its State, so long will this regime continue, and so long will the medical and scientific work be hampered or restricted. To counteract this tendency and to improve the situation is plainly an obligation upon a co-operative body of physicians representing a given State. It owes this obligation not to itself alone, but to the great public which receives the benefits of the State institutions, which supports them, and which must look to the medical profession for advice and guidance in this, as in other questions of medical sociology.

There may be those who would challenge the statement that the medical institutions of Ohio are still embarrassed by political restraint. It can, however, readily be verified. Kindly allow me to cite you some confirmatory evidence: The question of party politics enters so prominently that everyone in close touch with institutional affairs looks for a complete reorganization of the State hospitals on the occasion of a change in political parties. Boards of trustees, the supreme governing agents in these hospitals, are appointed by the chief executive of the State and have a limited tenure of office as prescribed by law. To the credit of the more recent State administrations it may be said that these assignments have generally been of a high order, and that changes in the managing boards have rarely been made except for natural causes or for obvious reasons. Still, considerations of party or factional politics have operated as underlying factors in some of these appointments. As for the selection of the medical staff—the choice of the superintendent and the assistant physicians—the question of politics has rarely been brought into prominence. On the other hand, the reputation of political uncertainty and the meagerness of scientific inducements have often deterred the best qualified physicians from seeking the service of the State's hospitals. Outside of the staff of physicians—the executive officers and employes—every medical institution in Ohio comes to feel the influence of partisan or factional politics in their preferment, and only the firm stand of a strong superintendent who insists upon merit as the prerequisite for stability of office prevents injury to the service. The vital question of appropriations rests in the hands of two committees from the legislature, and these committees very rarely have members qualified by previous experience or study to pass intelligently upon the claims and needs of the various institutions. Very serious mistakes and grave injustice re-

sult from this system, for the really urgent needs of one institution may be disregarded while the less pressing claims of another may be granted. The present practice of allowing the large finance committees of the legislature to pay a hurried visit to the State institutions in order to determine the justice of the demands for financial aid is especially bad. We have but to look at the work of the recently adjourned 76th General Assembly to realize how completely the moneys for the State hospitals are at the mercy of the ebb and flow of politics. This Assembly has sustained much adverse criticism for the manner in which and purposes for which it expended the State's funds; and added to this it gained the reputation of having awarded the State institutions as a whole relatively smaller appropriations than any of its predecessors in recent years, with the result that several of these State hospitals will be handicapped for the present, if not seriously crippled for the future; especially since the Governor was compelled to select them among the objects of his veto in retrenchment. It is indeed deplorable when even the State's benevolent institutions must suffer through the agency of party, factional or geographic politics, and assuredly the time for action on the part of organizations like ours has arrived.

Enlightened public sentiment is strongly set against political interference in the eleemosynary establishments of the State, and it requires but the active agitation of an organization with its units disseminated throughout the commonwealth to fan this prejudice into activity. As it is today confederated, the Ohio State Medical Association is in a good position to effectively aid the State hospitals in a propaganda looking to the elimination of politics, to the improvement of the service, and toward the fulfillment of those ideals of scientific medicine which all progressive physicians realize to be essential to the best and most fruitful activity of these institutions. That such results may be attained is illustrated by the recent experience in Illinois where the Chicago Medical Society has, since its reorganization, taken a decided step toward dictating the medical-administrative policy of the Health Department, the public general hospitals, and the county institutions for paupers, the insane, and the tuberculous. Following on the heels of this success by a municipal organization, the Illinois State Medical Society is now outlining a program looking to an energetic campaign in behalf of the hospitals of the State at large.

Realizing as I do from actual experience the conditions now surrounding and entering into our State hospitals, well aware of their shortcoming in a scientific direction, but keenly cognizant of their vast possibilities as concern the advancement of medical science and the cause of humanity, I am impelled to advocate with all my power the immediate cooperation of this State Association in their affairs.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

The fourteenth annual meeting of the American Electro-Therapeutic Association will be held at the Inside Inn, St. Louis, Mo., September 13th, 14th, 15th and 16th, 1904. The scientific sessions will be held only in the mornings, leaving the afternoons free in which to visit the attractions of the fair. It is believed that a large proportion of the members of the Association will be present this year, as the World's Fair offers many attractions in itself; and in addition to the convention of the Association, there will also be held in St. Louis, from the 8th to the 17th of September, the annual convention of the American Roentgen Ray Society and the convention of the International Electrical Congress. These events will make St. Louis a point of great interest to us at the time of the convention there.

As the convention is to be held at the Inside Inn, it is very desirable that all the members should have their quarters in this hostelry; hence if you have not already engaged your rooms, it would be wise for you to write and do so at once on the reservation blank contained in the descriptive pamphlet of the Inn which I sent you two months ago.

The following amendments to the Constitution and By-Laws, notice of which was given at the 1903 meeting, will be voted upon at this meeting, namely, sections 9, 10 and 11 of the Constitution to be so amended that they will read as follows:

9. Every applicant for membership, whether a Fellow, Life Fellow, Honorary Fellow, or Associate Fellow, shall be endorsed by two Fellows in good standing, and be presented to the Executive Council through the Secretary, the properly signed application blank to be accompanied by the admission fee of five dollars which shall also constitute, in the event of election, the annual dues of such applicant for the year during which he is elected. If he is not elected the five dollars shall be returned to him with notice of rejection. The Executive Council shall make due inquiry concerning the professional attainments and standing of the applicant and if satisfied as to his eligibility, shall instruct the Secretary to notify each Fellow that the election to Fellowship of such applicant is recommended, and that unless good and sufficient reasons for rejection are communicated to the Secretary within a stated time (which shall be not less than two weeks), such applicant shall be considered duly and properly elected. A postal card directed to each Fellow at his address last known to the Secretary shall be considered sufficient notification of such impending election.

If no such communication is received within the specified time, the applicant shall be considered as duly elected a Fellow of this Association, and a duly executed certificate of membership forwarded to him forthwith; if such a communication is received, election of the ap-

plicant shall be deferred until the annual meeting following, notice that such applicant will be voted upon being sent to each Fellow at least one month before the date of such meeting. A two-thirds vote in the affirmative of all the Fellows present shall be necessary to elect at such meeting; fifteen Fellows at least being in attendance.

Section 57 of the By-Laws to be omitted entirely, and by-law 58 to be so amended as to read, "Each Fellow shall pay annually in advance to the Secretary the sum of five dollars, which shall constitute his annual dues."

The preliminary program to date, subject to amplification and revision, appears below:

"Some Observations on the Medical Uses of the Constant Current," Daniel Roberts Brower, Chicago, Ill.

"The Therapeutic Application of the Continuous Current," Truman Abel Pease, Norwood, N. Y.

"Exhibition of a New Current Controller and Discussion of the Methods of Therapeutic Control of Street Main Currents," George Betton Massey, of Philadelphia, Pa.

"The Cataphoric Treatment of Cancer," Amedee Granger, of New Orleans, La.

"Clinical Reports of Some Interesting Cases Treated by Electricity," Samuel Fairweather Wilson, of Montreal, Canada.

"Clinical and Experimental Effects of Electrical Currents of High Potential and Frequency," John Holcomb Burch, of Baldwinsville, N. Y.

"Therapeutic Action of High Frequency Currents," Walter Henry White, of Boston, Mass.

"Electro-Therapy of the Psychic and Sympathetic Neurone Centers," Charles H. Hughes, of St. Louis, Mo.

"The Physiotherapy of Neurasthenia," T. Riviere, of Paris, France.

"The Value of the Roentgen Ray in the Diagnosis of Fractures," Mihran Krikor Kassabian, of Philadelphia, Pa.

"Diagnosis of Calculi," Russel Herbert Boggs, of Pittsburg, Pa.

"Further Researches in the Treatment of Tuberculosis," Jefferson Demetrius Gibson, of Denver, Colo.

"A Case of Hyperidrosis of the Axillae Cured by the X-Ray," George H. Stover, of Denver, Colo.

"Violet Light Baths; Their Physiological and Therapeutic Effects," Ernest Albert-Weil, of Paris, France.

"The Use of the Ultra Violet Light in Therapeutics," Albert Eugene Stern, of Indianapolis, Ind.

"Locomotor Ataxia Successfully Treated with Ultra Violet Rays," Joseph Monroe Liebermann, of New York, N. Y.

"Some Aspects of Phototherapy," Charles Rea Dickson, of Toronto, Canada.

"Photo-Therapy in Chronic Diseases," John Harvey Kellogg, of Battle Creek, Mich.

"The Importance of Associating Other Physical Measures with Electricity in Therapeutics," William Benham Snow, of New York, N. Y.

Yours very truly,

Clarance Edward Skinner.

County and District Societies.

CLAY COUNTY MEDICAL SOCIETY.

Officers.

President, R. L. Falley.....Bible Grove
Vice-President, J. C. Weber.....Clay City
Secretary, C. E. Duncan.....Flora
Treasurer, W. F. Fairchild.....Flora

Program Committee: Drs. N. W. Bowman, Flora; W. E. Burgett, Louisville and J. V. Dillman, Bible Grove.

The next meeting is to be held at Louisville, on the second Tuesday in September.

HANCOCK COUNTY MEDICAL SOCIETY.

Regular meetings are held in the Court House at Carthage, the first Monday of each quarter. Membership 30.

Officers.

President.....Downing N. Nice, Bowen
Secretary.....R. L. Casburn, Carthage

The Society met in north jury room of court house, July 11, 1904, at 1 P. M. Members present: Drs. Reaburn, Ferris, Runyon, Parr, Loomis, Callahan, Waggoner, Frazie and Casburn. Dr. Wm. Rankin of Basco was present and elected to membership. Dr. J. C. Taylor of Hamilton petitioned for membership.

Dr. Runyon read a very interesting paper on **purulent conjunctivitis** and reported a case. The paper brought out a very general discussion. Dr. Parr reported a case of **vascular tumor,** which was freely discussed.

The Hospital Committee reported that the work of soliciting funds, to build the hospital, was going on and meeting with encouraging results. Report received and committee continued and ordered to hasten the work.

The question was raised as to whether certain notorious violators of the medical practice laws of the State, practicing in the county, ought not to be prosecuted. No action was taken.

It was also reported that **members of the Society had subscribed for what was known as the Lane Treatment of Alcoholism, Morphinism, etc., of Knoxville, Tenn., and pledged themselves to keep it secret. Such conduct being in notorious violation of the principles of ethics.** It was also claimed that the solicitor who took such subscription showed a long list of names of physicians from all parts of the State and country, who had also subscribed

for such prescription, and made the same pledges as to secrecy. No action was taken, but it was hoped that there was a mistake somewhere.

Society adjourned to meet the first Monday in October.

HAMILTON COUNTY MEDICAL SOCIETY.

Officers.

President ..... H. E. Hale
First Vice President ..... I. M. Asbury
Second Vice President ..... Harry W. Dale
Secretary and Treasurer ..... C. M. Lyon
Board of Censors: W. W. Hall, J. J. Hassett and Inman Hall.

The Hamilton County Medical Society met in regular session in the town hall, at 1:30 o'clock, p. m., Tuesday, July 12, 1904. Present: Dr. H. E. Hale, president, Drs. D. F. Whited, L. C. Morgan, F. V. Westfall, I. M. Asbury, J. J. Hassett, H. M. Dale and C. M. Lyon, secretary. It was ordered by the Society that the secretary invite Dr. J. T. McAnally, of Carbondale to attend the next meeting of the Society.

Resolutions on the death of Dr. Wilford F. Hall, were presented by a committee consisting of Drs. I. M. Asbury, J. J. Hassett and Harry W. Dale. The resolutions were adopted and it was ordered that they be published in each of the county papers and that a copy be presented to the family of our deceased brother.

A paper on **Zoster, Its Forms and Treatment** was read by Dr. J. J. Hassett, and discussed by J. J. Hassett and Harry W. Dale.

Dr. D. F. Whited read a paper on **Infantile Convulsions, Etiology and Treatment,** and the paper was discussed by Drs. Asbury, Westfall, Dale and Hassett.

The author being absent a paper on **Trachoma** by Dr. W. W. Hall, was read by the Secretary, and discussed by Drs. H. E. Hale, J. J. Hassett and Harry W. Dale.

Society adjourned to meet at the court house in McLeansboro, Tuesday, October 11, 1904.

EDWARDS COUNTY MEDICAL SOCIETY.

Regular meetings are held quarterly. Membership 10.

Officers.

President ..... W. E. Buxton, Samsville
Secretary ..... J. H. Lacey, Albion

The Edwards County Medical Society held its regular July meeting at the office of the Albion Vitrified Brick Company, Albion, July 12, 1904. President W. E. Buxton in the chair. Members present: W. E. Buxton, A. C. Low, A. H. Niemilier, J. L. McCormack, J. S. Williams and J. H. Lacey. Visitors, Dr. Edw. Adams of Kentucky. Dr. J. T. McAnally, Carbondale, councilor for 9th District was also present.

Application of Dr. D. W. Bouen of West Salem for membership was favorably reported and same received into full membership.

Dr. S. S. Stahl, a senior at the Marion Sims-Beaumont, St. Louis, read a highly instructive paper on **The Bacteriology of the Alimentary Tract.**

Councilor J. T. McAnally talked entertainingly of the importance of medical organization and earnestly requested all physicians in the county to become members of the local and State Societies.

At the suggestion of the president the Board of Censors acted as a committee to draft a resolution condemning and discouraging the practice of physicians reporting cases to the local papers for the sole purpose of advertising. Following is the resolution which was unanimously adopted by the Society:

Be it resolved, That it shall be unethical and unprofessional as well as detrimental to the best interests of the members of this Society for any member thereof to publish in any manner or in any paper or periodical other than Medical Journals, his or their connection with any accident, illness, surgical operation or report of births and that the Society request the local editors to withhold the names of physicians connected with the same.

The meeting adjourned to meet the second Tuesday in October.

CLARK COUNTY MEDICAL SOCIETY.

Regular meetings are held at Marshall, quarterly. Membership 12.

Officers.

President ..... Jos. Hall, Westfield
Vice President ..... R. H. Bradley, Marshall
Secretary ..... L. J. Weir, Marshall

The Clark County Medical Society met at Marshall, at 2:30 p. m., in Dr. Haslit's office in regular session.

President Hall being absent, Vice President Bradley presided.

Members present: Drs. Bradley, Ryerson, Smith, J. Weir, H. W. Haslit, Percy P. Haslit, G. W. Prewitt and L. J. Weir.

Visitor, Dr. Burnsides.

Dr. Smith's paper on **Summer Diarrhoeas** was a thorough presentation of the subject. The causes of the disease, especially errors in diet. Symptoms, not only the diarrhoea but the condition of the patient and stools. Pathology or rather the lack of anatomical changes except in chronic cases.

Prophylaxis correct diet, suspend the use of milk for one to two days, in many cases giving egg water and treatment or better management. But little medicine is useful.

The subject was discussed by all present for three hours. Many important and profitable points were made.

Among the most important were the following: The doctor should have complete control of the case otherwise the patient's life is jeopardized. People are learning all the time how to feed, bathe and clothe children and are thus lessening diarrhoeal diseases and mortality in early life. Calomel or castor oil to remove infections or undigested material. Bismuth for its sedative and local effect in large doses. Opiates in a few cases only when pain and secretions are quite severe. Colonic flushings in many severe cases. Rectal enemas of normal salt solution in cholera infantum. Plenty of water and in health and prevent too frequent nursing.

Dr. John Weir reported the meeting of the State Society at Bloomington and stated that

one of the benefits derived from attending that as well as any oher Society was the enthusiasm acquired.

That warfare on tuberculosis is to be the main work of the Medical profession of the state this year, and that officers were elected who were especially qualified by leading the campaign against this dread disease.

On motion the rules of the Society were suspended and Drs. Gould, Smith and Percy P. Haslit were elected members of the Society by acclamation.

Insanity was selected as the subject for the next meeting. Dr. C. D. Ryerson was selected to write the paper.

Society adjourned.

CHRISTIAN COUNTY MEDICAL SOCIETY.

Regular meetings are held quarterly at Taylorville. Membership 20.

Officers.

President.....W. T. Bridges, Stonington
Vice-President.....Matt Hill, Taylorville
Secretary and Treasurer...F. E. North, Taylorville
Directors.....C. L. Carroll and G. L. Armstrong, Taylorville; M. W. Staples, Grove City.

The Christian County Medical Society met in regular session in Taylorville, Thursday, July 21. President Bridges in the chair. Sixteen members present.

The following program was given:

President's address to the Christian County Medical Society, W. T. Bridges, Stonington.

The address offered a great many suggestions to the members, asking their individual aid in helping to enroll every eligible practitioner in the county as a member by this avenue, increasing the membership in the State Society.

In speaking of our State Society, it was impressed upon all the necessity of giving the Society our support and respect, in this way only could we find ourselves and the profession respected by the public.

The suggestion of the profession in our county electing two or more reputable physicians as supervisors met with favor, it being pointed out where the profession would receive more just consideration by the Board of Supervisors.

J. N. Nelms, Taylorville, read a paper on **Puerperal Disease.** An abstract is as follows: The paper was limited principally to puerperal eclampsia.

The idea of nephritis acting in all cases as an etiological factor was criticised; he giving as causes uremia, toxaemia, ptomainaemia and increased blood pressure.

Making frequent urinalysis in the pregnant and finding pathological conditions of the urine warned us to be on the alert and better prepared to meet the emergency. No one should attend a case of confinement without being properly equipped; in a given case where we find albumen and casts during the period of gestation, we know better what to expect and are enabled to more quickly interpret an intense cephalalgia or slight delirium.

Any error in diet or more elimination of by products may disturb the eliminative organs to the extent of causing toxaemia or uremia and the consequent development of delirium, convulsions or coma.

The death of the foetus in utero may raise the maternal blood pressure and cause cerebral congestion with usual train of symptoms, e. g., headache, delirium, convulsions or coma.

In support of the above the following was offered: Called to see Mrs. J. L. S., primapara, full term, age 21. Found her suffering with intense headache, no symptoms of beginning labor. The cerebral disturbance had reached a point bordering on convulsions. The prompt administration of morphine and atropine hypodermatically, followed by arterial sedatives and potassia bromide gave prompt relief. Twenty-four hours later I called and found patient in labor. After a reasonable time I found her attempts unavailing and I resorted to forceps and delivered.

The baby was still born and presented evidences of having been dead for many hours.

The death of the foetus caused the cerebral congestion in the mother, the blood which nourished the foetus in utero being transferred to the mother by its death, was thrown into the arteries of the mother, thus increasing the arterial tension and producing the cerebral congestion.

Three other cases were reported in the paper. One due to error of diet in which the urinalysis was negative so far as any pathological condition was concerned until the acute attack, which came on suddenly and first manifested itself as a case of gastro-enteritis, after eating cucumbers, and raw cabbage and tomatoes.

The third case reported had a convulsion soon as the head reached the perineum. She was promptly delivered, convulsion ceased, and at no time was there any evidence of nephritis.

The fourth case reported occurred in a patient who had an albuminuria and casts after a very difficult labor, instrumental delivery, she recovered.

As treatment for the condition of puerperal eclampsia, no one line of treatment should be followed but the case treated individually according to the "etiological factors."

Dr. Solloday of Owaneco read a paper on **Ileo-Colitis,** the doctor reviewed the bacteriology and pathology of this condition. Special stress was laid upon the hygienic treatment.

The article of diet brought out some good points, the main fact being to keep all food away from the child and at the same time impress upon the mother the necessity of so doing. The older practitioner spoke of our improvised hygienic conditions ameliorating the severity of the condition to what it was in former years.

Dr. C. L. Cassel, Taylorville, read a paper on **Tuberculosis.** Paper dealt principally with the pneumonic infection and general tuberculosis.

The difficulty encountered in the differential diagnosis between typhoid and general tuberculosis was spoken of, concluding that only time could help us in some cases.

Treatment consisted mainly in building up the patients system, by forced feeding, and

abundant fresh air; indorsing the open air treatment.

The streptococcic serum had improved some cases in the second and third stage.

Meeting adjourned.

VERMILION COUNTY MEDICAL SOCIETY.

Regular meetings are held the second Monday of each month in the city hall, Danville, at 8:30 p. m. Membership 71.

Officers.

President ..... Jos. Fairhall, Danville
Vice President ..... F. N. Cloyd, Westville
Sec'y and Treas. .....C. E. Wilkinson, Danville
Board of Censors: ...H. F. Becker, T. E. Walton, W. A. Cochran.
Committee on Medical Practice Act: E. E. Clark, S. L. Landauer, S. C. Glidden.

The Society held its regular monthly meeting Monday evening, June 13, in the City Council Chamber, President Joseph Fairhall in the chair.

Minutes of the May meetings (regular and special) were read and approved.

The report of the committee on entertainment for the meeting of the Aesculapian Medical Society, which met in this city May 26, 1904, was read and approved and the committee discharged.

The bill for the floral offering for the funeral of Dr. E. A. Johnson, whose death occurred Saturday, June 11, at his parents' home, in Champaign, was ordered to be paid.

The following resolution was read and adopted:

Whereas, It has pleased Almighty God to remove from our midst our esteemed colleague, Dr. E. A. Johnson, after a prolonged and painful illness, which he bore with a truly Christian fortitude; therefore, be it

Resolved, That by his untimely death, the Society has lost a valuable member, that the members of the Vermilion County Medical Association herewith tender his parents and family their profound sympathy and that a copy of these resolutions be sent his parents and put in the minutes of this meeting.

The arranging of the program for the coming year was discussed, after which the president appointed H. W. Morehouse and H. F. Becker as a committee to arrange program, have same printed and each member of the Society be sent a copy by July 15, 1904.

The name of Dr. J. R. Collier, of Catlin, was presented for membership.

The next regular meeting will be held the second Monday evening in September.

The following members were present: W. A. Cochran, H. W. Morehouse, H. F. Becker, Joseph Fairhall, C. Leavitt, J. W. Wilkins, G. L. Williamson, I. E. Huston, R. A. Brown, W. J. Brown, J. W. O'Haver, Solomon Jones, F. N. Cloyd, J. G. Fisher, D. V. Ray, O. W. Michael, R. A. Cloyd, T. E. Walton, F. W. Barton, P. E. Z. Butz, C. F. Hoffmann, and Charles E. Wilkinson.

Dr. H. F. Becker read a paper on **Puerperal Infection** with report of a case. The essayist presented the subject principally from the preventive and diagnostic point but also mentioned the treatment.

Abstract.

"Whenever a woman in the puerperium has a pulse of 90 or over and a temperature of 100.5° or more, the obstetrician should be on his guard. He should carefully exclude inflammation of the breasts or any other possible cause of the increased temperature. If he can find nothing in his general examination, he may find on local examination, some ulcerating wounds on either the perineum, vulva, vaginal walls or cervix, which will be covered with a dirty, yellowish secretion. If after a few days the patient shows symptoms of a general intoxication, it is probable that the seat of absorption is in the endometrium.

Bearing in mind the possibility of infection, it is the duty of the obstetrician to prevent it. In my opinion sterilized hands are the most essential and so far as I can investigate the "Fuerbringer Method" is the best. The method is as follows: After proper preparation of the fingernails, scrubbing the hands in hot water, with soap and brush, then five minutes scrubbing with 70 to 80 per cent alcohol and then immediately soaking them in a 1-1000 sublimate solution (instead of the sublimate sol., a 2 per cent lysol sol. may be used). It is worthy of note that alcohol will only destroy micro-organisms when they are moist on account of its diffusibility and great affinity for water. If not moist, the alcohol as soon as it comes in contact with the micro-organisms, forms a coagulated membrane around them thereby preventing any further penetration and the bacteria remain active.

Knowledge of the bacterial invasion in puerperal infection is essential to successful treatment. If only anaerobic bacteria are present, decomposition is going on in utero, causing sapraemic intoxication. If streptococcus pyogenic germs are present alone, or if present with staphylococcus pyogenes aureus or albus it is probable that the streptococcus is the infecting organism, which is the most common but varies enormously in virulence. In pure streptococcus infection there is no offensive odor to the lochia, which may be very scanty or abundant. If anaerobic bacilla are found there may be the bacilla coli communae or certain putrefactive bacteria causing putrid endometritis—but I would like to ask, where is there a general practitioner that has either, faculty, inclination or time to make these bacteriological examinations and investigations. I believe that most of us simply conclude, that when our patient has a temperature with rapid pulse, the lochial discharge being offensive, that there must be some putrefactive changes going on in the uterus and some placental tissue or membrane must remain. If on the other hand the lochia is seemingly normal and our patient has a chill followed

by fever, we conclude that we have a streptococcus infection—providing no other cause can be found to account for the symptoms.

How to prevent infection can be summed up in a very few words, viz: "Be Clean"—surgically clean. This in hospital practice and where the services of a trained nurse can be had, can be carried out; but can the general practitioner always have a trained nurse or send or take his cases to the hospital? Not I. Consequently we must depend on some one who has no knowledge of surgical cleanliness, much less of infection—and you need not be surprised to find that any "old rag" will do in the shape of a padding to be placed under your patient. We as physicians, are inclined to become somewhat lax in regard to such cases because most of them get along nicely. That more cases do not suffer from infection Dame Nature is to be credited, but when infection does occur then the doctor is to blame.

Therefore see that **your hands are clean,** make few examinations—two being regarded as sufficient. One to ascertain if dilatation is taking place and one to ascertain the presentation."

The essayist concluded his paper by referring to the treatment advised and reported a case in which drainage was established through the posterior cul-de-sac with favorable results.

An interesting discussion followed the reading of the paper and the discussion was closed by the essayist.

Dr. H. W. Morehouse presented an interesting paper on **Diseases of the Pancreas** and reported some cases—one of haemorrhagic pancreatitis in which diagnosis was made before death and confirmed by an autopsy.

The paper was interesting to the members on account of the cases reported being somewhat unusual.

Drs. F. N. Cloyd and J. G. Fisher each reported an interesting case.

CRAWFORD COUNTY MEDICAL SOCIETY.

Regular meetings are held the second Thursday in every second month. Membership 24.

Officers.

President ..... Dr. Frank Dunham, Robinson
Vice President ..... Dr. L. R. Illyes, Heathsville
Secretary ..... Dr. H. N. Rafferty, Robinson
Treasurer ..... Dr. C. Barlow, Robinson
Delegate to State Meeting..Dr. J. W. Kirk, Oblong
Board of Censors: Dr. G. W. Fuller, Palestine; Dr. W. H. Hoskinson, Trimble; Dr. C. H. Voorheis, Hutsonville.

The Society met in regular session at the office of Dr. A. G. Meserve, Robinson, on Thursday, July 14, 1904.

The president being absent, Vice President Price was in the chair. The following members and visitors were present, viz.: Price, Meserve, Firebaugh, Barlow, Gordon, Dunham, Fuller, Illyes, Barlow of Texas, and H. N. Rafferty.

Dr. R. L. Gordon read a paper on **Sciatica.** This was well received by the Society, as every one present could call to mind his few successes and many failures in the treatment of this very stubborn affection. The author directed his attention particularly to the treatment and general management, and his suggestions, together with those brought out in the discussion, should be of value in our future contact with these cases.

Dr. Midgett's paper on **Cholelithiasis** was read by Dr. Dunham, owing to the unavoidable absence of the author.

Cholelithiasis is a condition due to the precipitation of the solid elements of the bile, resulting in the formation of calculi or concretions which act as obstructions in the biliary passages.

Two important points with reference to the formation of calculi have been presented by Naunyn. The origin of cholesterin, as well as lime salts, from the mucus membrane of the biliary passages—particularly when inflamed; and the remarkable association of micro-organisms with gall-stones. It is stated that Bristowe first noticed the origin of cholesterin in the gall-bladder itself, but Naunyn's observations showed both the cholesterin and lime were in great part a production of the mucosa of the gall-bladder and of the bile ducts, particularly when in a condition of catarrhal inflammation excited by the presence of microbes.

The lithogenous catarrhal condition greatly modifies the chemical composition of the bile, and favors the deposition about the epithelial debris and bacteria of the insoluble salts of lime, in combination with bilirubin. Welch and others have demonstrated the presence of micro-organisms in the center of gall-stones.

There are other points that have been very clearly brought out, viz.: the demonstration that the gall-bladder is a particularly favorable habitat for micro-organisms, among which may be mentioned the colon bacilli, streptococci, staphylococci, pneumococci, and typhoid bacilli.

An important fact is the length of time they will live in the gall-bladder, the typhoid bacillus having been isolated in pure culture seven years after an attack of typhoid fever. Secondly, gall-stones have been experimentally produced by injecting micro-organisms into the gall-bladder of animals. Thirdly, the association of gall-stones with the specific fevers.

One-half of all cases of gall-stones occur in persons over forty years of age, being rare under twenty-five, although they have been found in infants. Three-fourths of all cases occur in women. Pregnancy has an important influence, Naunyn stating that 90 per cent of women with gall-stones have borne children. All conditions which favor stagnation of bile in the gall-bladder predispose to the formation of stones. Some of these are corset wearing, enteroptosis, nephroptosis, and occupations requiring a leaning forward position, lack of exercise, over indulgence in food, constipation, and depressing mental emotions.

The symptoms produced by gall-stones are: 1. those caused by the passage of the stone through the ducts—biliary or hepatic colic: and, 2. those caused by obstruction in the ducts or intestine: 3. those due to ulceration and

perforation, at any portion of the biliary tract, and the establishment of a fistula.

An attack of biliary colic commences suddenly with severe pain, sometimes preceded by gastric distress, but often without premonitory symptoms. The pain is felt over the region of the gall-bladder, radiating up the right side of the chest to the shoulder, and across the abdomen.

It is paroxysmal in character, intense and agonizing. The patient finds it impossible to keep still, usually losing all control of herself, and throws herself from side to side on the bed or floor. Vomiting occurs from time to time, often giving momentary relief. In severe cases it is sometimes persistent. Perspiration is profuse, circulation depressed, and the extremities cold. Not infrequently there is a marked rise of temperature.

The pain disappears when the stone passes, which may be in a few hours, or it may require days or even weeks. A dilated gall-bladder may often be detected, and there is usually well marked tenderness, on local examination.

A stone may cause symptoms of obstruction by lodging either in the cystic or common duct. In the first case, dilatation of the gall-bladder is likely to ensue, forming a well marked tumor, which may be felt below the margin of the liver, projecting directly downward into the abdomen. This sometimes becomes enormous in size, even simulating an ovarian cyst. If the obstruction is in the common duct, it usually occurs at it's mouth: hence there is greater likelihood of infection, and dilatation of the duct. Osler says catarrhal cholangitis with obstruction is marked by intermittent paroxysms of chills, fever, and sweating, simulating ague; persistent jaundice, most intense after the paroxysm, and hepatic pain and tenderness. Perforation may cause fistulous connection between the gall-bladder and hepatic duct, the portal vein, liver, intestine, stomach, or lung.

Perforation into the abdominal cavity is not uncommon, neither is an intestinal obstruction caused by the presence of a stone, both conditions producing symptoms analagous to those resulting from obstruction or perforation from other causes. A closed fistulous tract may be attended by no symptoms, and is impossible of diagnosis.

Gall-stones may be present and produce no symptoms. Biliary colic is seldom dangerous to life, although a perforation may occur, making surgical attention necessary. It may be confused with intercostal neuralgia, pleurisy, intestinal or renal colic, appendicitis, or gastric ulcer, although a careful physical examination usually establishes the diagnosis without difficulty. In most cases, the recurrence of the attacks, association with jaundice, and the discovery of calculi in the stools, leave no doubt as to the character of the disease.

Since biliary colic is prone to occur in obese patients past middle life, it is well to prescribe systematic exercise suited to the strength of the individual, and a regulated diet that excludes saccharine and starchy foods. Phosphate or sulphate of sodium may be used to regulate the bowels, and the alkaline mineral waters taken freely to flush the excretory tracts. No medicinal treatment offers hope of dissolving the calculi when they are once formed. Any good results obtained by remedies which aim at this end are doubtless due to facilitating the passage of the stone.

Large doses of olive oil are believed to have a beneficial effect. Sulphuric ether and chloroform have been recommended. Durande prescribed with good results a mixture made up of three parts of ether and two parts of turpentine—twenty drops to a dram given every morning. This is likely to prove irritating to the stomach, but is regarded as especially efficacious in many cases. It stimulates the flow of bile, and many reduce the jaundice. For the relief of an attack of biliary colic, it is necessary to resort to hypodermics of morphine and atropine. Hot applications, or better the full hot bath, may be used, causing muscular relaxation, relieving the pain and spasm, and thereby favoring the passage of the stone.

When the attacks occur with persistent regularity, or there is evidence of obstruction or other complications, surgical intervention should be advised.

In the discussion, the point was made that the term cholelithiasis means biliary calculus, and not necessarily biliary colic; in other words, that a large per cent of those who have one or many calculi in their gall-bladder, never have any attacks of gall-stone colic, and consequently a diagnosis is not usually made.

Dr. H. N. Rafferty presented a case of **Chronic Hydrocephalus** in a child of nine months, with an occipito-frontal of 17¾ inches, and a body-weight of 13½ pounds.

Dr. Rafferty also showed a phosphatic stone removed from the bladder of a woman who had suffered from a severe cystitis for eight years. The stone was easily removed through the urethra, although the first attempt was a failure on account of lack of thorough dilatation.

This being the annual meeting, officers for the ensuing year were elected as above.

MERCER COUNTY MEDICAL SOCIETY.

Regular meetings are held at Aledo, quarterly. Membership 25.

Officers.

President ..... C. W. Carter Aledo
Vice President ..... H. I. Allen, New Boston
Secretary and Treasurer..V. A. McClanahan, Viola
Censors: H. H. Sherwood, New Windsor; E. J. Hay, Millersburg; P. T. Bohan, Seaton.

At the meeting held October 13, 1903, the following paper was read:

Regarding the Contagiousness of Typhoid Fever and the Vitality of the Typhoid Germ.

F. D. Rathbun, Galesburg: The purpose of this paper is to invite your attention to the following practical points regarding typhoid fever, which are deemed worthy of study and discussion.

1st. The vitality of the typhoid bacillus in the living body, or how long after convalescence the patient is liable to communicate the disease by means of the excreta.

2d. The vitality of the germs outside the living body, and their power to generate in soil and other favorable media.

3d. The proper means of disposing of the excreta so as to prevent the spread of the disease.

The typhoid germ has been shown to remain active in the living body under favorable circumstances for a considerable length of time. They have been so found in post-typhoid abscesses evacuated several years after the occurrence of the fever. They have been found in the urine over one month after apparent recovery from the disease. Cystitis may result from the retention and multiplication of the bacilli in the bladder, the germs remaining active for years. Houston reported a case in which the typhoid germs persisted after a period of three years. Vaughn is inclined to question the accuracy of this observation of Houston. The length of time that the germs can be found in an active state in the evacuations from the bowels after recovery is uncertain. In all probability they are a source of danger to others for three or four weeks at least. The Eberth bacillus has been found in the contents of lung cavities. It is reasonable to believe that evacuation of the contents of such cavities by coughing might be a source of infection for a considerable length of time.

We now come to the vitality of the Eberth bacillus outside the living body and it's power to generate in soil and other favorable media. Experience and observation demonstrated long before the discovery of the specific germ of typhoid fever, that certain water supplies and soils when impregnated with the excrement from persons suffering from the disease, did under favorable circumstances form centers of infection, and that many epidemics of typhoid fever originated in this way. Since the discovery of the specific germ many experiments have been made with reference to this point. It has been shown that the presence in soil of organic matter and the process of nitrification greatly favors the multiplication of the germs. This was well shown in the well known experiments of Martin and Robertson. The experiments of Martin were conducted with earths pulverized, placed in Erlenmeyer flasks and sterilized, afterwards adding cultures of typhoid germs. He found that in soils polluted previous to sterilization with organic matter that the micro-organisms were present and showed growth after a lapse of one hundred and five days, while in soils that had contained no organic matter they did not multiply and soon disappeared.

Robertson's experiments approached nearer to the conditions that would obtain were the excreta of a typhoid fever case thrown carelessly on the surface of the ground or buried a short distance beneath it. They were conducted in a grass covered field, the turf was removed and cultures of the Eberth bacillus planted at various depths. The turf and soil previously removed was then carefully replaced. Examination of the infected locality made one hundred and thirty days thereafter showed that in every instance the bacilli had retained their vitality and had multiplied. In certain spots where the earth was treated with dilute sterile broth the micro organisms were found eleven months after planting in great abundance, while in localities not thus treated with organic matter no growth was shown. Thus demonstrating that in a soil polluted by sewage or other organic matter the bacilli will thrive and continue to grow for a long time. In this experiment Robertson found that the germs did not multiply during the cold season but were not destroyed thereby. The same conditions to a certain extent hold good in regard to the multiplication of the germs in wells and other water supplies, as with soil, the presence of nitrates greatly favoring their growth, it is very doubtful according to Tyson whether they can generate in running streams. When spread in thin layers and exposed to direct sunlight the germs soon loose their vitality. Complete dessication also destroys them. In soil not completely dessicated they retain their vitality a long time and may in this way cause infection by being carried by winds in the form of dust to other localities as cited by Colville. The germs have been found active and able to reproduce themselves in the bodies of persons dead of typhoid fever three months after death.

The proper disposition of the excreta in cases of typhoid fever is the key note to success in the prevention of the spread of the disease.

This should include the urine, which is quite as potent a factor as the alvine evacuations in producing infection. Cremation stands first as the surest method of destroying the germs. This in most instances is not practicable, and some other plan must be devised. The following method is suggested as being economical, easily carried out and effective. During the progress of the disease and for at least four weeks thereafter, the urine and bowel movements should be deposited in a large heavily glazed earthen-ware jar having a cover of the same material, and treated with bichloride of mercury, chloride of lime, or some other reliable germicide; the cover being kept on when not in use in order to avoid infection from flies and other insects. At the expiration of this time the cover should be cemented on and the vessel buried deeply in the clay sub-soil at a distance from wells or other sources of water supply.

CHRISTIAN COUNTY MEDICAL SOCIETY.

Regular meetings are held at Taylorville quarterly.

Officers.

President ..... C. W. Bridges, Stonington
Secretary ..... F. E. Morton, Taylorville

Uterine Colic Following Vaginal Injections.

Delivered before Christian Co. Medical Society, Taylorville, Ill. Dec. 1903.

Matt A. Reasoner B. S. M. D.
Late House Surgeon Medical Department University of Illinois. Late Ass't Surgeon Mexican Central R. R.

The subject of **Uterine Colic** as a result of vaginal injections is one I have rarely seen or heard discussed. The text books for the most part scarcely mention it. It is in its worst types comparatively rare and only in the most ex-

treme and rarest cases fatal. Yet it is in any case sufficientlyy painful and annoying that its true nature and cause should be recognized and in cases known to be susceptible, care should be taken to prevent its recurrence.

Case No. 1. Unable to use vaginal douche since summer of 1902, on account of pelvic cramps which at times were very severe, lasting from one to five hours. Obtained a history of a typical uterine colic resulting from a warm plain water post-partum douche following a confinement several years previous. Pains were excrutiating, abdomen tense, countenance became pallid, pulse feeble and rapid. Nausea. Medical aid called and in several hours after hypodermic injection and other measures, condition was relieved.

No. 2. Miss B. Nulipara, aged 23. Endometritis and contracted cervix. Used warm diluted carbolic douche. This was folowed by acute sharp pains in lower part of abdomen. Nausea. Weakness and extreme prostration. To such a degree that death seemed impending. Temperature lowered and pulse rate elevated. Morphia and atrophia hypodermatically, hot applications and recumbent posture. A return to normal after a few hours.

No. 3. Mrs. C. Primipara. For days after birth of child a warm plain water, vaginal douche was given. It was followed by localized pain and cramps in lower part of abdomen and symptoms of most extreme shock. Same treatment as above. Recovery though death seemed approaching.

No. 4. Mrs. H. Multipara, aged 32. A cold vaginal douche had been used three days after confinement. This was followed by a typical uterine colic of most severe degree. Medical aid was called and after a few hours she was declared to be out of danger.

No. 5. Mrs. W. Primipara, aged 23. During the puerperium I found it advisable to use a warm Lysol douche (dram SS to quart). Patient complained of cramps following first injection and still more severely after second. **The third time I used an intrauterine douche through a Leonard dilating uterine tube and patient did not complain.** I draw no positive conclusions from this one case. It may have been only a coincidence.

No. 6. Mrs. X. Injection following parturition. A case different from the foregoing. A localized peritonitis followed the subsidence of the first symptoms. There can be no question but that in this case some foreign material was forced through the tube and into the abdominal cavity.

As I gaze retrospectively over my comparatively few years of practice; One experience often recurs to my mind and I trust and pray that the good Lord in his omnipotent wisdom will not see fit to compel me nor any of those who have trusted their lives to me to undergo the same again. It was a case of uterine colic.

No. 7. Mrs. D. Primipera, aged 35. Two years after curettement for an endometritis. I delivered her of an eight pound child. With the exception of a mild cystitis all went well until the fifth night when I was hurriedly summoned. With the idea of relieving her cystitis the woman in charge had given her a warm, plain vaginal injection. A few minutes after the injection, patient was taken with a chill and the most extreme pains referred to the lower portion of the abdomen, abdominal walls hard and tense and tender. Pulse 140 wiry, temperature 103°.

I gave morphia 1-4 atropia 1-150. I applied turpentine stupes and gave some small doses of calomel, which patient promptly vomited. Went to my office a couple of blocks distant for Antistreptococcic serum. When I returned her color had changed to an ashen gray, skin cold, profuse perspiration, pulse 170, weak, thready and almost imperceptible. Patient at this time not in such extreme pain, but conscious and believed herself to be dying, in which prognosis I concurred. I used atropia, strychnia, glonoin, hot irons, etc. Elevated foot of bed, gave saline injection. Two of us actually rubbed the skin from off her legs and abdomen, while a third interruptedly used the full strength of a Faradic current which fortunately was at hand. When the heart would seem to be almost fluttering its last, I used rather violent heart massage and with good effect. For six long hours we kept the heart going. Time after time it would falter and patient seemed to be breathing her last and again our exertions were redoubled and we would arouse it and cause it to flutter on, and patient would seem to revive and then again sink away. At 10 o'clock, a. m., color returned, the heart took up its work permanently and the mother was saved for her child and husband and our long fight was not in vain. Except as a result of our manipulations she had little pain. The temperature was 98° and the pulse 90, a little irregular and not very full.

No. 8. I am under obligations for the following history to Dr. P. A. Harris, of Ogden, Ill., in whose words I present it:

"Patient robust, aged 25, mother of two children aged respectively 15 years and four months. The injection was for the purpose of the prevention of conception, self administered, plain, cold water. Was called one-half hour after injection was taken. Found her suffering intense pain in lower abdomen, cold, almost pulseless. She informed me of what had happened, saying this had happened before but not so badly. Gave her hypodermic to relieve pain after which she became quiet and went to sleep. She rested four or five hours. Then became sick at stomach vomited and pain returned. I had just arrived when she vomited and had severe spasm during which bowels moved very copious thin watery stools. She lay in comatose condition about one hour, when she had the second spasm. After this the coma deepened until death, ten hours after injection.

Cause surgical shock, result of acute pain."

Case: I am under obligation to Prof. Wm. H. Harsha, of Chicago, for the following history:

Miss X. Nullipara, unmarried, aged 19. The subject of severe dysmenorrhoea for which medical aid was always required. At last attack patient was affected more severely than

usual. Went into condition of surgical shock and died in a few hours.

I do not class above case with my list because it did not follow an injection. But I consider it an important point in my argument. Proving that in an undoubted case of uterine colic, surgical shock may ensue and in that condition the patient may die.

Through the kindness of Drs. J. D. Colt and G. A. Siler, of Litchfield, Drs. Hammers and F. E. North of Taylorville, Dr. T. J. Whitten of Nokomis and Prof. H. T. Byford and Wm. M. Harsha, of Chicago, and Dr. P. A. Harris of Ogden, Ill., I have compiled a list of fourteen of which the above cases are typical of the various degrees.

As a further point in this argument I would draw attention to the fact that deaths have quickly followed injections into the normal uterine cavity. A case to the point happened some time ago in one of the St. Louis clinics.

Following the injection of a dram of sterile water into the uterine cavity the patient died on the table. In these cases the uterus probably contracted and shut off the return flow.

I would first divide these cases as follows: Four of the fourteen occurred to normal uteri and eleven were post parturient.

I would also divide them with reference to after effects. Two of the fourteen (both post partum) developed a localized peritonitis twelve showed no after effects.

I would further divide them with reference to predisposition toward uterine colic. All of the normal uteri and two of the post parturient had shown such tendency.

As to elevation of temperature, two showed a raise, one immediately and one later. Twelve did not or at least I have obtained no history of such. Six were reported as being subnormal.

As to solution used. Three were carbolic properly diluted, one lysol, four cold water and six plain water. I believe that in a large number of cases the proportionate results from cold solutions would be greater.

With regard to etiology I can draw conclusions which would however be of more value were the number of cases greater.

One commonly accepted idea has been that the flow of the douche has forced some liquid, clot or other material up through the uterus and tubes and into the peritoneal cavity. That would be mechanically possible in the post-parturient cases. But it does not appear reasonable in the four normal uteri and especially in Case 2, with the contracted cervix. If foreign material had been forced into the peritoneal cavity in the eleven post parturient cases sufficient to cause such symptoms, we would have expected a peritonitis to have developed in more than two of these cases.

Further if the etiology were different in normal uteri and post parturient cases why should the signs, symptoms and after results be so near uniform?

In nullipara and normal uteri it has been suggested that cold douches are to blame. I am led to believe that cold solutions will most likely cause uterine colic. But my cases clearly show that in susceptible patients warm solutions may also cause this condition.

Water flows in the direction of least resistance and the initial force of the flow is speedily overcome; due to the opposing vaginal walls and vaginal outlet. Hold a spray tube in the hand and see the result. While the liquid can in post-parturient cases flow into the uterus, I fail to see why it should need to go in sufficient quantity and with sufficient force to push out into the peritoneal cavity and if it did why should it produce such sudden severe and only temporary symptoms?

As I have said in two cases this did occur but in these cases was it not due to the contractions of the uterus on contained liquid? It is possible in the pregnant uterus to excite contractions by directing a continuous flow against the cervix. Might it not be that these cases reacted quicker to this stimulus and some liquid contained in the uterus acted as a foreign body? To further support this contention I cite again the occurrence in normal uteri, the predisposition which existed in four of the fourteen cases and the fact that in case No. 5, the use of the intrauterine douche with dilated cervix was not attended with colic. Last of all in case No. 9, in which there was no injection used, a true case of uterine colic. Surgical shock followed the extreme pain and ending in death.

Treatment: The condition is one of surgical shock. Relieve pain and treat as such.

I have wondered what might be the effect if any from a uterine dilatation, or from a cocaine solution cautiously applied to the cervix internally or perhaps in apparently desperate cases the use of spinal anaesthesia.

Prophylaxis—In cases known to be susceptible forbid the use of any and all vaginal injection. And while cold water is the more liable to produce uterine colic, warm solutions may cause the same result.

I would recommend that no syringe nozzles be used except such as have the apertures arranged so as to produce a backward flow.

I would most strongly deprecate any procedure which necessitates forcing liquid into the normal uterine cavity.

I will be under obligations to any one for case histories and further information on this subject.

Morrisonville, Ill.

ADAMS COUNTY MEDICAL SOCIETY.

Regular meetings held in Quincy the second Monday of each month at 2 p. m. Membership 70.

Officers.

President ..... L. H. A. Nickerson, Quincy
First Vice Pres ..... John A. Koch, Quincy
Second Vice Pres ..... J. M. Grimes, Camp Point
Secretary ..... Geo. E. Rosenthal, Quincy
Treasurer ..... R. J. Christie, Jr., Quincy
Censors: C. D. Center, Jos. Robbins, S. B. Ashton, Quincy.
Delegate State Society..E. B. Montgomery, Quincy

The July meeting was held on the 11th at the chamber of commerce with President Nickerson in the chair. Those present were: Drs. Ashton, Bates, Baker, Burch, Byers, Center, Christie.

Gilliland, Hart, Justice, Koch, Knapp, Knox, Montgomery, Nickerson, Pfeiffer, Reticker, Robbins, Rosenthal, Sigsbee, Williams, W. W., Williams, J. J.

It was decided that the September meeting was to be held in Mendon and was to partake of the nature of an old fashioned basket picnic, Dr. Knapp's lawn to be the picnic grounds and members of the Society and their families are expected to attend.

Dr. E. B. Montgomery, chairman of the committee on legislation, submitted the following report:

"To the Adams County Medical Society:

Your legislative committee, to whom was referred a death certificate given by one J. F. Walker, D. O., and the correspondence between the City and State Boards of Health relative thereto, beg leave to report that from the papers submitted it is evident: First, that J. F. Walker, D. O., is plainly assuming the right to practice medicine. Second, that he is doing so in defiance of the laws of the State of Illinois.

We recommend that the evidence of such infraction of the Medical Practice Act be brought to the notice of the person whose duty it is to prosecute such cases.

While it is hardly a matter for the legislative committee to pass upon, it must be evident to every member of the profession that persons who are attempting to practice medicine in defiance of the laws of the state, entirely aside from any question of their competence to do so, are not persons with whom professional consultations should be held or to whom any professional recognition should be given."

Respectfully submitted,

E. B. Montgomery,
Joseph Robbins,
Thos. B. Knox.

In the discussion it was brought out that another death certificate for the case in question was issued by a regular physician so that the statutory enactments, in this particular were complied with and it was not known that J. F. Walker, D. O., used anything more than massage or manipulations in his treatment, hence it was the general opinion that although the findings in regard to illegal practice were true, yet there was not sufficient evidence for a legal action.

In regard to consultations with osteopaths it was almost the unanimous sense of the meeting that such consultations were in violation of the code of ethics, and the sanction of such dogmas as osteopathy, by consultations with practitioners thereof, was wrong. It was not deemed a matter for legislation but rather one for individual decision.

Drs. C. A. Wells and W. S. Wolf of Quincy and Marion F. Reiffert of Poloma were elected to membership.

Dr. C. W. Pfeiffer presented the following paper on **Auto-Intoxication:**

One of the most frequent conditions met with in considering the etiological factors in the production of disease is that of auto-intoxication. During the early period of the germ theory of disease the germs themselves were regarded as the maleficient agents in the production of disease processes. Later on it was contended by many eminent authorities that it was not the germs themselves but the toxic materials or toxins which they generated that caused the trouble. And within still more recent years the theory that the body without the introduction of any external disease-producing germ or toxic materials can, by a retrograde metamorphosis of its own tissues, produce virulent poisons which may and frequently do lead to serious derangements and even cause death. We may therefor, with Weber, define auto-intoxication as a poisoning of the system by the products of its tissue metamorphosis: which products may be normal but do harm by excessive accummulation, or they may be pathological either not at all or in minute quantities only, present in the healthy body. This is well illustrated in the weariness often following excessive muscular action often assuming the form of distress and if the effort be continued the distress may become so great as to cause complete exhaustion that even death may result. In excessive work of what ever kind it may be, in order to accomplish this work the demand upon the blood for oxygen is increased. There are numerous things besides carbonic acid gas which are swept into the blood as a result of the activities of the body. In other words the product of work in the human body is poison which must be eliminated through the excretory organs.

Fatigue fever as described by Vaughn and others occurred in this manner: Fever as generally considered is an increase of heat production beyond that of heat (production) dissipation, an agent arising from within or without deranging the harmony of the thermotoxic, thermogenetic and thermolytic operators. Once established the fever continues not from excessive production of heat but from the altered relation between heat production and heat dissipation. Fever is not a phenomena of excessive oxidation of the constituents of the body.

Heat production may be subnormal yet the temperature of the body may be very high. The equilibrium between heat production and heat dissipation is maintained by the thermotoxic centers of the brain keeping the bodily temperature at 98.4. Another very important factor in heat regulation are the peripheral endings of the sensory nerves influencing the thermolytic centers. Nerve shock or allied conditions giving rise to disturbance of the thermic balance is often productive of the auto-toxemia underlying soburrol fever which presents about the following clinical picture. It begins with loss of appetite, tongue is large, white and dirty. Clammy mouth; fetid breath; habitual constipation. The patient is languid, feeble, indisposed for work. This condition is often supervened by paroxysms of chills and followed with sweats. Under the influence of overwork, emotion, exposure to cold, etc., arrest of digestion, nausea, vomiting, headache, chills and fever occur. In children vertigo and convulsions often usher in this disease as is also the case with neurotics. In view of these facts as to the

formation of toxic materials by strong muscular activity, I have been lead to believe that many cases of mild poisoning following parturition in which every possible precaution has been taken to avoid external infection, are caused by the long continued uterine action, which, if intense and tonic, in all probability generate toxic materials more rapidly than they can be eliminated, especially if the uterus has been stimulated by the administration of ergot during labor. It is therefor of the utmost importance to keep all the excretory functions of the pregnant and parturient women in first-class working order. Further more experience in a limited number of cases has convinced me that fractional doses of calomel with potassium aceate and spirits of nitrous ether with a little tincture of aconite if the latter is indicated, given for a day or two, will do more toward arousing the excretory organs and poison destroying powers of the system and relieve the threatening puerperal infection more effectively than any other kind of medication. In the preface to Oliver's translation of Bouchard's work he says as follows: "Bouchard in his Auto-Intoxication" clearly indicates to us that man is constantly standing on the brink of a precipice; he is continually on the threshold of disease. Every moment of his life he runs the risk of being overpowered by poisons generated within his system. Self poisoning is only prevented by the activity of the excretory organs, chiefly the kidneys and by the watchfulness of the liver, which acts the part of a sentinel to the materials brought to it by the portal veins from the alimentary canal.

The place held by autotoxemia in the production of mental diseases is second only to heredity. Peterson in describing the causes of insanity uses two terms, heredity and strain; heredity, which renders the nervous organization unstable the strain, which causes the unstable nerve centers to collapse. It has long been known that the fluids in the body of the insane undergo modification. Recent investigation has shown that the urine in the insane is much less toxic than in the normal condition; while the lethal action of this fluid is increased in melancholia. Ammoniacal urine gives rise to excitement and convulsions when injected into an animal, while the injection of urine taken from a case of melancholia is followed by a depression of spirits, restlessness and stupor, a proof that auto-intoxication is the cause and not the effect of a mental condition. Bouchard has also shown that urine taken from a healthy person if injected into animals produces toxic symptoms and when used in sufficient quantities will cause death. From a careful study of a large number of experiments conducted on animals he arrives at the conclusion that the urine contains substances which produce the following effects:

First. A diuretic substance.

Second. A narcotic substance.

Third. A convulsive substance.

Fourth. A sialogenous substance.

Fifth. A substance producing contraction of pupil.

Sixth. A heat reducing substance.

I believe that every observing physician could bear witness to the fact that many cases of depression of spirits, mental hebetude and general pessimism are due not to some incipient serious organic disease, as the patent medicine manufacturer or the blatant advertising charlatan would have these sufferers believe, but are merely the result of the accumulation of retrograde toxic products produced by the normal activities of their bodies, but which instead of being promptly eliminated, accumulate in the blood and poison the nervous centers, set up disorders of the digestive organs, overtax the liver and lead to almost innumerable functional derangements. It is now well understood that not only are diseases directly connected with the digestive and urinary (tract) organs, caused by auto-intoxication but likewise disorders of distant and special organs are due to the same cause chief among which are ambiyopia and that form of optic atrophy which Uthoff placed among the unknown causes.

While not relaxing our care and vigilance to prevent the introduction of external infective materials yet I believe the facts to which I have called attention should serve to broaden our views of the causes of disease and increase our vigilance in preventing them and enlarge our power of combating them when existant.

While such a course should not relax our duty in searching for the specific bacilli and their toxins which cause many diseases, it should at the same time enlarge our mental horizon and impress upon our minds the fact that our whole duty consists not only in identifying the germ and discovering a germicide to destroy it, but the patient should receive our most serious and earnest consideration in our endeavor to secure elimination of the peccant materials by correcting and sustaining the proper function of the excretory organs thereby increasing the resistance of cells and tissues in their battle against their destroyers. The therapeutics of autoxemia will depend largely upon the type. In cases of irritable weakness a change of environment is desired for the most rapid and permanent recovery. Much may be attained by regulation of diet, use of the mineral waters, regular and moderate exercise and massage as well as hydrotherapy. In this trouble the great need of the system is water and it should be amply supplied for which the ordinary water will suffice if mineral waters for some reason cannot be procured. Large quantities of milk or better still buttermilk will act admirably in a large number of cases. Purgatives require very careful adjustment.

Dr. Pfeiffer's paper was discussed by Drs. Justice, Ashton, W. W. Williams, Christie, Robbins and Gilliland.

Dr. E. B. Montgomery reported a case of **Intestinal Obstruction Following Appendiceal Abscess Nineteen Months Previous, Anastomosis: Recovery.**

Patient was a butcher, age 28; an operation was performed for fulminating appendicitis November 26, 1902, appendicitis resulted in per-

foration and abscess in 36 hours. Patient made a good recovery with the exception of a small ventral hernia.

On June 6, 1904, he was seized with severe intestinal pain, colicy in character, accompanied by vomiting and constipation but with no rise of temperature. On June 9, at noon vomiting became foecal in character and continued until 10 p. m., when a laparotomy was done at Blessing Hospital.

Patient's condition was precarious when he went on the table, pulse rapid and feeble and color cyanatic.

Incision was five inches long, in the median line, the small intestine was found distended with gas and fluid contents, highly congested, bright red in duodenum and of a pale liver color at point of obstruction in the ileum, this viscus was held down and partly obstructed by a fibrous band three inches in length, which was ligated and removed with scissors. Ileum and caecum were also bound down by peritoneal adhesions, which it was found could not be separated. An anastomosis was performed between the ileum, above the point of obstruction and the transverse colon below with a Murphy Button. Abdomen was closed by a continuous cat gut suture for the peritoneum and interrupted silk worm gut for skin and muscle.

Patient was in collapse when taken from table at midnight but under stimulation rallied nicely by the following morning, and made an almost uneventful recovery, being discharged on the 30th.

Dr. Montgomery exhibited the patient who is in excellent condition.

Dr. Christie reported a case of gastro-enterostomy in which he used the McGraw ligature. Patient was on full diet within a month and with no return of gastric symptoms which had indicated the operation.

This was the second gastro-enterostomy performed on this patient, in the first a Murphy Button was used and after its passage the lumen of the anastomosis became so narrowed by cicatricial contraction that the second operation was done.

Dr. Christie reported a case of **Pyo-haemothorax in a Child, Following Pneumonia.** The perforation of a bronchus was followed by the condition of pyo-haemo-thorax. The pleura was drained by operative procedure and mechanical methods were used to bring the pleurae in contact until adhesions formed. A perfect result was attained by the fifteenth day after operation.

Adjournment.

Diarrhoea in Children.

By E. A. Glasgow, M. D., Mulberry Grove.

The term diarrhoea is used to cover all conditions attended by frequent loose evacuations from the bowels. These depend upon an increase in peristalisis and in intestinal secretions. Certain etiological factors are common to all forms, as age, season, surroundings, constitution, dentition, food and feeding.

The manner of feeding is perhaps the most important factor in the production of diarrhoea. Fatal cases in nursing infants are extremely rare. Artificial feeding in itself does not cause so much trouble if it is properly done. The mistake is often made in overfeeding. Impure or contaminated milk is also an important cause.

Among the different forms of diarrhoea may be mentioned the following: 1. Mechanical. 2. From Drugs. 3. Eliminative. 4. Acute Intestinal Indigestion. 5. Acute Gastro-Enteric Infection.

The latter is the most important of all the various forms and deserves special mention. It is also known as summer diarrhoea, gastro-intestinal catarrh, gastro-enteritis, cholera infantum and mycotic diarrhoea. This is the form which is so prevalent in summer. It occurs each season in large cities in epidemics, and also prevails to a greater or less extent in the country districts. The lesions in the intestines are slight, amounting in most cases to a superficial catarrhal inflammation. The severity of the symptoms are usually due to the absorption of toxic materials, the result of putrefactive changes in the stomach and intestines. Of course if the infection is of sufficient intensity and duration it leads to structural changes in the intestine, especially in the lower ileum and colon.

Etiology. Among the causes are: First, those which give rise to acute indigestion, and secondly, general factors as predisposing to all forms, already mentioned. The most striking thing about these cases is their prevalence in hot weather. It generally commences in June and ends in October. July is the month in which it is most generally severe. According to Seibert an average mean temperature of about 60° F. is needed to start the disease. The temperature must remain in this neighborhood for about a week. Some authors contend that this form is caused by a direct action of the heat, but the view which is almost universal now is that the disease is of an infectious origin.

Clinically, Holt divides gastro-enteric infection into two forms: 1. The simple form and 2. True cholera infantum. This classification is perfectly proper I think.

Simple Gastro-Enteric Infection. In the mild cases there may be for the first few days no symptoms but the diarrhoeal discharges, or the children may be peevish or fretful. The stools generally become more frequent, are thin, green, yellow or brown and always contain undigested food. After a time the odor becomes offensive and mucus is present. Appetite may be normal, but is usually impaired; tongue coated. With appropriate treatment these cases usually recover in from one to three weeks.

The picture is very different in cases developing suddenly. The attack may begin abruptly in a child previously healthy. Child is restless, cries much and seems in distress. Temperature rises rapidly to 102° or 103°, often to 105°. May lie in a dull stupor with eyes

sunken, weak pulse and general relaxation, or there may be restlessness, even convulsions; great thirst. Usually in from 4 to 6 hours vomiting begins. Diarrhoea soon follows, first foecal stools, then great bursts of flatus, with expulsion of a thin yellow material with an offensive odor. In other cases the stools are gray, green or greenish-yellow, sometimes brown. After two or three days mucus may follow.

Diagnosis. The diagnostic points are the sudden onset, severe symptoms, comparatively brief duration and usually favorable termination. Acute gastro-enteric infection cannot always be distinguished from acute indigestion, but as a rule they are characterized by a higher temperature, very offensive stools and by occurring epidemically in the summer.

Prognosis—Simple cases of gastro-enteric infection do not often prove fatal, except in infants under three years old.

Prophylaxis—This is very important. First the hygienic surroundings should be good, plenty of air and sunlight, cleanliness, proper care of napkins, etc. The second part relates to food and feeding. Maternal nursing should be encouraged by every possible means. No weaning should be done, if it can be avoided, during the summer. If artificial feeding is resorted to the important dangers to be emphasized are over-feeding, too frequent feeding, use of improper foods, impure foods, especially milk. Over-feeding is especially to be avoided. Diminish each meal one-third, making up deficiency with water, all water should be boiled.

Hygienic treatment—Fresh air is very important for all summer complaints, children should be kept quiet, should wear light flannel; bathing is useful to allay restlessness and to reduce temperature.

Dietetic treatment—In nursing infants the breast must be withheld so long as a disposition to vomit continues and no food given for 12 hours. Albumin water, barley or whey may be given for thirst. If the breast milk is at fault, as in pregnancy, menstruation, nervous disturbances, etc., it may be necessary to stop nursing either temporarily or permanently. In artificially fed children cow's milk must be withheld during the stage of acute symptoms. When it is begun both the casein and fat must be greatly reduced by dilution. For young children milk must be diluted from six to ten times, preferably with a sugar solution or with barley or rice water. During the acute symptoms give rice or barley water, wine whey. The malted foods, albumin water, fresh beef juice, animal broths, etc. Animal foods should not be allowed for several days after stools are normal.

Medicinal and Mechanical treatment—It must be borne in mind that we are not treating an inflammation of the stomach or intestine, although this may be the ultimate result. Measures must be directed against the acute indigestion and the putrefaction in the intestinal tract. The first thing to do is to evacuate the stomach and the entire intestinal canal. Treatment should never be begun with measures to stop the discharges. The initial vomiting may be sufficient to empty the stomach. If not stomach washing may be done. Emetics may be used in older children, but never in infants. To clear the intestine cathartics are the only means available. Calomel and castor oil are superior to all other cathartics. Calomel has a favorable effect upon vomiting and is antifermentative. One-fourth of a grain should be given every hour for eight doses, or until characteristic green stools are seen. Castor oil is preferable when the stomach is not disturbed, as it is soothing and causes little griping. Two drams should be given to a child 2 years old and half an ounce to one 4 years old. Irrigation may be resorted to for the colon. It should be done three or four times the first day and once after that. Evacuation, almost complete starvation for 24 hours and careful feeding thereafter are all that are necessary in the majority of cases. Of the other drugs, I like the subnitrate of bismuth best. It rarely causes vomiting and can be given in large doses, at least two drams should be given daily to a child 2 years old. The subgallate is also good. 1/20 to 1/10 gr. calomel may be given every hour. Its best effects are seen when used early. Salicylate of soda, salol and the sulphocarbolates are sometimes useful. Alkalies are of value when there is acid fermentation with eructations of gas. Astringents often do more harm than good. About the only indications for opium are great frequency of movements and severe pain. It is contraindicated until the intestinal tract is entirely emptied. If stimulants are needed, brandy or whisky may be given. We now come to true cholera infantum.

The term should be restricted to cases of genuine choleriform diarrhoea. It bears a striking resemblance to asiatic cholera. It is closely connected with the feeding of impure cow's milk as a rule there is some antecedent intestinal disorder. Usually there are general symptoms, prostration and a steadily rising temperature for a few hours before vomiting and purging begin, or these may be the first to excite alarm, vomiting may precede diarrhoea or both may begin simultaneously. The vomiting is very frequent. The stools are frequent, large and fluid. They are of a pale green, yellow or brownish color at the start, but after a time they are almost entirely serous. Loss of weight is more rapid than in any other pathological condition of childhood and the prostration is great from the first. The temperature ranges from 102 to 108, just before death. The pulse is always rapid, soon becomes weak, often irregular and finally almost imperceptible. Respiration is irregular and frequent and may be stertorous. The abdomen is generally soft and sunken. Symptoms such as these rarely continue for more than one day without a change for better or worse. In the fatal cases there are hyperpyrexia, cold clammy skin, absence of radial pulse, stupor, coma or convulsions and death. In cases going on to recovery vomiting usually ceases first, stools become less frequent, contain more solid

matter and have more color. The pulse improves, temperature falls, and the nervous symptoms get better.

Diagnosis. Cholera infantum can be readily recognized if the chief symptoms are kept in mind—constant vomiting, profuse serous stools, great thirst, dry tongue, high temperature and great restlessness, followed by rapidly developing collapse, sunken fontanel, pinched anxious face, cold extremities, weak pulse, dyspnoea, cyanosis, stupor, coma and death. Prognosis, 75 per cent die.

Treatment. This is very unsatisfactory. The indications are: (1) Empty stomach and intestines. (2) Neutralize the effect of the poison upon the heart and nervous system. (3) Supply fluid to make up for the drain. (4) Reduce the temperature. (5) Treat special symptoms. For the first, irrigation; for the second, the hypodermic use of morphine and atropine; for the third, injection of normal salt solution; for the fourth, bathing.

Besides these forms of diarrhoea we name diarrhoea caused by acute and chronic colitis and iliolcolitis (dysentery), and chronic intestinal indigestion.

Report of a Case of Acute Lymphatic Leukaemia with Ascaris Lumbricoides.

F. M. Aderhold, M. S., M. D., Surgeon to Zeigler Hospital, Zeigler, Ill.

Case No. 1572, St. Mary's Hospital, Chicago. Mr. —, a Pole, born in Austria and a laborer by occupation, 35 years old.

Family history: Father is dead, age and cause of death not known. Mother is alive and well, aged 58. One brother is alive and well, age 40. No brothers dead. Two sisters are alive and well, aged 33 and 38. No sisters dead.

Personal history: Does not remember any sickness in childhood or adult life until present trouble. His brother and friends confirm this statement. Worker in Austria as a peasant farmer until four months ago when he came to Chicago and began to work as laborer on Railroad track, near Lake Michigan. Served in Austrian army three years, beginning at age of 22. Is married, four children living and well. No children dead. Denies all venereal history.

About one month after arrival suffered some with pain in right leg and ankle. This improved after rubbing it with alcohol. This leg was not weaker than the other and did not trouble him in his work. Has been drinking one to three glasses of beer per day and whisky occasionally.

Present illness: Three weeks before admission patient began to have headache. Three days later began to develop pains in abdomen. These could not be referred to any particular part but extended in general over upper portion. Both headache and pains persisted and patient began to have diarrhoea second day after pains began. This condition continued to become worse and patient quit work in one week from appearance of first symptoms. About this time he vomited a liquid which was dark in color. He now consulted a physician and obtained medicines. All symptoms continued and three days ago he began to have shortness of breath upon exertion. One day before admission patient was markedly jaundiced.

Present condition: Patient looks very anaemic, is slightly jaundiced and skin has a greenish tint. Does not know whether he has lost weight or not. Is fairly well nourished. Eyes react to light and accommodation, teeth are normal, tongue is pale around edges and brownly coated around center, throat, lips and gums are pale. Carotid pulsations are plainly visible in neck. His axillary and inguinal glands are slightly enlarged and palpable. Other glands in body are not palpable.

Chest: Has never had pain in chest. Visible and palpable area of apex beat enlarged and diffuse. Cardiac dullness is slightly increased. There is a blowing systolic murmur at apex.

Abdomen: A small area of tenderness on palpation over stomach. Liver dullness extends two fingers below costal arch. The spleen is not palpable. There are no other marks or findings about the patient. Temperature 100.4°, pulse 94, respiration 23.

Urine: First passed after admission aromatic odor, amber colored, sp. gr. 1012, no sugar, no albumen. Microscopical examination showed a few epithelial cells and bacteria.

Blood, July 28th, a. m.: Reds, 373000, whites, 31200, hoem. 9 per cent. Proportion of white to reds, 1 to 12.

Blood, July 29th, p. m.: Reds, 447900, whites, 25800, hoem. 9 per cent. Proportion of whites to reds, 1 to 18.

From the time of admission, July 27, 3 p. m., to the time of his death, July 30th, 8:15 a. m., his temperature varied from 98.6° to 100.4° and his pulse from 94 to 136. He had severe pains in his abdomen which at times were accompanied by vomiting or attempts to vomit. The vomitus was greenish in color and contained blood on several occasions.

About noon of July 29th, the patient vomited an ascaris lumbricoides, 9½ in. long. Up to this time no suspicion of such a parasite was entertained.

Treatment: The patient was first given liquid diet but when vomiting continued he was placed on rectal feeding. Calcium chloride gr. V per rectum were given every two hours. By this time his blood had been examined and we thought the bleeding in his stomach was caused by the condition of his blood. The post-mortem examination showed that this was not the case. Strych. sulphate was also given in 1-30 gr. doses hypodermatically every four hours. Just before death he was given a pint of normal salt solution under each breast.

It is much to be regretted that permission for only a partial post-mortem examination was all that could be obtained. It showed in the stomach an oval erasion of the mucous lining, about 1 c.m. in diameter. This was on the lower portion near a large blood vessel. In the lower 5

or 6 ft. of the ilium were 30 to 40 similar erasions and ulcers, 2-3 to 1 c.m. wide and 2 to 4 c.m. long. The other ascaris lumbricoides was washed out when the intestinal canal was flushed. It was the male and was about 7 in. long. The mesenteric glands were indurated and enlarged. None of the ulcers seemed to be in process of healing.

A differential count of the blood cells in this case was very difficult to make on account of the uncertain staining properties of the blood. Blood which behaves like oil upon glass has uncertain staining properties and this was a case more marked than is ordinarily found. Specimens were prepared with Ehrlich's triacid stain; with eosin and methelyn blue and with haemotoxylon and eosin. The last named stain gave by far the most satisfactory slide from which a count could be made. All specimens came from blood taken at one sitting so there was no chance for the blood to change between times of obtaining specimens.

A count of 512 white cells showed as follows:

Mononuclear lymphocytes, 295 or about 57 per cent.

Polymorphonuclear lymphocytes, 190 or about 38 per cent.

Transitional lymphocytes, 5 or about 1 per cent.

Unclassified, 20 or about 3½ per cent.
Normoblasts, 3.
Mast cells, 2.

On account of the increasing knowledge of blood changes being gained by the study of intestinal parasites it was thought proper to report this case. Whether it is a case of acute lymphatic leukaemia with no enlargement of the lymph glands and practically none of the spleen with these parasites as a mere coincidence or whether the changes are all due to absorption of some product of them is difficult to say. The case looks like one of acute lymphatic leukaemia with a grave anaemia superimposed upon it. The presence of the parasites with so many intestinal lesions makes it apparent that they could have been a factor in the cause of the blood changes.

The writer wishes to thank Dr. S. R. Pietrovitz of St. Mary's Hospital, Chicago, for permission to report the case and also Dr. F. R. Zeit of Northwestern University Medical School laboratories for suggesting the haemotoxylon eosin stain as best for making a differential count.

Marriages and Deaths.

MARRIAGES.

Dr. Edw. Peer Ames of Findley and Miss Mary Parnell Normyle of 4534 Forrestville ave., Chicago, July 13, 1904.

Dr. John Y. Bennett and Miss Bertha Crumbaugh, both of Leroy, June 26.

Dr. Edw. W. Cannady of East St. Louis and Miss Ida Rose of Columbia, June 15.

Dr. Geo. H. Dempey of Grafton and Miss Hattie J. Richardson of Maumee, June 23.

Dr. Spencer S. Fuller and Miss Marguerite L. Smith of Riverside, June 29.

Dr. Clarence W. Hopkins and Miss Mary Emma Kinzie both of Chicago, July 16, 1904.

Dr. Thos. H. Leonard of Chicago and Miss Caroline M. Gehlbach of Lincoln, June 21.

Dr. James W. McDonald and Miss Bertie Grace Hardie both of Aurora, June 17, 1904. Dr. McDonald is an active practitioner of Aurora and Miss Hardie, daughter of a Chicago physicain, had been head nurse at the Aurora City Hospital. The marriage occurred at Milwaukee in June but had been kept secret until recently.

Dr. James McManus of Cairo and Miss Alice Cleary of Memphis, Tenn., June 15.

Dr. H. Edward Saner and Miss Nellie Bogle both of Chicago, July 27.

Dr. S. L. Stevens and Miss Vida E. Uppendahl, both of Dalton City, May 16.

Dr. Lewis C. Messmer of Pontiac and Miss Martha K. Everett of Danville, June 22.

Dr. Ernest W. Potthoff of Chicago and Miss Nellie G. Slocum of Oak Park, June 25.

Dr. Otto Rohrlach and Miss Florence Neumann, both of Chicago, June 8.

Dr. Kirk Shawgo of Piper City and Miss Myra Wilcox of Quincy, June 15.

Dr. Paul Wakefield and Miss Olive Lindsay, both of Springfield, June 14, 1904. Miss Lindsay is a daughter of Dr. V. T. Lindsay, one of the oldest practitioners of Springfield and Dr. Wakefield has entered into a partnership with Dr. Lindsay.

Dr. Clifton M. Waugh of Toluca and Miss Mamie McMaster of Mt. Ayr, Iowa, July 22.

Dr. Sherman E. Wright of Chicago and Miss Katherine Best of Minneapolis, June 29.

DEATHS.

Dr. J. T. Keene, of Walshville died July 14, aged 50.

Dr. Lucius S. Ingmem of Oak Park died June 3, aged 66.

Dr. Joseph Haven of Chicago who has been acting as Consul at St. Kitts, British West Indies, for the past four years, died June 10.

Dr. A. E. Swanson, formerly of Chicago, died at Albuquerque, New Mexico, July 15, 1904. He was buried at Burlington, Iowa.

Dr. Ferdinand Hoffman, of 179 W. Division street, Chicago, a licentiate (1897) of the State Board of Health died July 10, 1904.

Dr. Milton R. Maxson of 1132 Washington Blvd., Chicago, July 26. He was buried in New York.

Dr. Clifford F. Odell, of Moline, June 15, aged 23.

The Illinois Medical Journal.

Special Section Containing Official Reports of the Chicago (Cook County) Medical Society and its Branches.

OFFICERS:

J. B. MURPHY, 100 State Street..... President
FRANK X. WALLS, 4307 Ellis Avenue.....Secretary
A. E. HALSTEAD, 2937 Indiana Avenue..... Treasurer
W. A. EVANS, 103 State Street ..... Chairman Medicolegal Committee
WM. HARSHA, 103 State Street .....Chairman Membership Committee

AUGUST, 1904.

The annual meeting of the Chicago Medical Society was held in the Schiller Hall, Wednesday evening, June 15, 1904, at 8 o'clock, with Dr. R. B. Preble in the chair.

Reports were presented from the Branch Societies, and without exception, their reports testified that the year had been a very profitable one.

The Secretary presented a brief report from the Council enumerating the members on the Council and the number of meetings that each member attended. The proceedings of the Council having been published each month in the Bulletin, the members were familiar with the deliberations of this body.

Dr. W. A. Evans presented the following report from the Medicolegal Committee:

Report of Medicolegal Committee.

The Medicolegal Committee begs leave to report as follows:

The year has been very satisfactory from their standpoint. Of the cases brought to our attention four were in the nature of complaints against members of the Society for unprofessional conduct. The Constitution provides that the first office of this Committee should be conciliatory. In one case the physician very promptly complied with the views of the objector and severed his connection with the objectionable institution. In the second instance the letter from a member of the Committee was replied to by a very sharp communication. After a few days the member sent in his resignation, and the Society accepted it. In the third instance the matter is still in the hands of the Committee, and the outlook is that it will be amicably settled within this week. In the fourth instance the basis of the charge lay in the strained family relations of two members of the Society. The Committee did not see fit to interfere.

The Society has already changed the Constitution so as to create a new Committee, called the Committee on Ethical Relations, to whom such questions as the above will be referred in the future. For this our Committee is very grateful.

Continuing our report of last year relative to the Christian Hospital. The case was brought to the attention of the Federal Grand Jury during the fall, with the result that Probert was indicted. A few days later he pleaded guilty, was fined $500 and costs, and promised not only to desist, but to leave this section of the country. Nothing more was heard of the Christian Hospital until April of this year, when they again sent out advertising bearing the name of a member of the Chicago Medical Society. It is true that a seeming effort had been made to erase this name, but the effort had not been made in good faith. This effort was again brought to the attention of the authorities, and it is hoped that we have heard the last of this matter.

Twenty medicolegal cases have been brought to the attention of two members of the Medicolegal Committee during the past year. When this report is published it will contain the full number of cases. Dr. Moyer is away from town and we have not been able to include his cases.

A synopsis of the twenty cases is as follows:

1. Suit for malpractice. Suit had been entered before it was brought to our attention. Declaration had been filed and demurrer entered. It is now awaiting its term on the calendar.

2. Threatened suit for malpractice matter brought to our attention promptly. We replied to letter to Dr. ——. The lawyer for the plaintiff and the doctor called on the Committee and the case was fully discussed. The lawyer has never pressed the matter since. No suit has been entered and it is hoped that it has been finally disposed of.

3. Suit for malpractice. Suit was entered, declaration and demurrer filed before it came to our attention. We have had several conversations with the doctors, and have made provision for medical care of the case at the proper time.

4. Threatened suit for damages. The lawyer's letter was answered by the Society. A statement was had from the physician who attended the case. The matter appears to be dropped, as up to the present time no suit has been filed.

5. Threatened suit for damages. Facts ascertained and advice given. Nothing has been

heard of threatened suit for about nine months now.

6. A case that had been previously tried and heavy damages awarded. A new trial was had. We have been counseling with the doctor, and will do what we can to aid him in this trial. We confidently hope we will be able to report favorably on this case next year.

7. A suit for malpractice. This suit antidated our Committee's existence by several years. We counseled with the defendant during his trial and Drs. Bacon and Moyer testified for him. The verdict was for the defense.

8. Suit for damages threatened. Advised with doctor. To all appearances case has been dropped.

9. Suit for malpractice. Advised with doctor. Consulted with witnesses. Declaration has been demurred to by Society's lawyers. In the meantime doctor has secured judgment for his bill. The case awaits trial.

10. Threatened suit for malpractice. Society is investigating facts. No effort has been made to carry out threat of one month ago.

11. Threatened suit for malpractice. Society's reply to lawyer was made nearly a year ago. Since then nothing has been heard from this case.

12. This case is awaiting trial.

13. Case of damage suit. Letter from one lawyer was answered by Society. He abandoned case. Another lawyer then took it up. He went on with case, filed a declaration. The Society filed a demurrer. It has fully investigated the facts and has them on its record for later use.

14. In this case the committee was consulted by the defendant. It gave advice and the matter has not proceeded further.

15. This was scarcely within the scope of the committee's functions, being principally a personal quarrel between a member and a druggist. The committee did not accomplish much.

16. This was a suit for damages originating before our time. It is awaiting call. We will render such assistance as we can.

17. This was a threatened suit for damages. Apparently it has been dropped.

18. This is a threatened suit for damages. It has been very completely investigated by the committee. Nothing has been heard from the threats for nearly a year, and it is hoped that the matter has been dropped.

19. Patient treated with X-Ray during summer. Threatened suit for shattered health. Our attorney advised suit for bill. One member visited present physician of plaintiff, who knew nothing of suit, but promised to discourage it. Dr. R. consulted another attorney and concluded not to sue for bill.

Later malpractice suit was begun, but no declaration filed. December 5 patient died. Later suit dismissed on account of failure of plaintiff's attorney to file declaration.

20. Patient treated in 1902 for abscess of breast. Dismissed doctor after one breast healed. Doctor sued and obtained judgment for bill. Patient threatened suit for malpractice through lawyer. Our attorney answered letter and advised to find doctor who subsequently threatened plaintiff. I asked secretary West Division, Dr. Pritzker, for help. After considerable investigation he reported failure to find party. Nothing further done in case.

In addition to the above work the Medico-Legal Committee has been gathering together all of the literature that it could that would help it in its work. They have such legal textbooks as have been written on this subject, and in addition they have started scrap books, in which they have placed several hundred clippings of cases having medicolegal bearings. Our firm of attorneys, Messrs. Pam, Calhoun and Glennon, dissolved partnership during the past year. It was decided to give the business to Mr. Dacey of that firm. Later Mr. Dacey became ill, and on account of his poor health was compelled to leave the city, whereupon the Committee employed the firm of Calhoun, Lyford & Sheehan. This is one of the ablest firms at the Chicago bar, and we feel that the Society is to be congratulated on securing the services of these capable gentlemen.

The $1.00 a year dues is providing ample for the work of the Committee up to the present time. In fact, the Medicolegal Committee now has a fund of $1,235 in the bank drawing 3 per cent interest. We hope to so manage the finances of the Committee so that in a few years it will have a material fund, and possibly they will be able to render more financial assistance than they do at the present time. We are even considering the policy of paying judgments at the proper time.

The Constitution provides that the Committee shall investigate the charges that are brought against a member and render them assistance in case the charge is ill-founded or the amount of recompense that is asked is thought to be excessive. In every case we have made the best effort possible to acquaint ourselves with all the facts before we have taken any action. This will continue to be the policy of the Committee; and the facts having been obtained and the Commtitee having decided to act, they have usually found it possible to reply to the lawyer who instituted the suit. We have found that it is just at this point that our services have been most useful. The result has usually been that the lawyer has not cared to risk the contingency of winning.

We are very anxious to hear of cases of threatened suit at the time when the first suit comes to hand. At this stage oftentimes we can save the member from further trouble. If, on the other hand, he waits until the case is well developed he can not be spared some expense and some trouble, and the usefulness of the Committee will be very much limited.

We believe we render more efficient aid to the members of the Society than can certain other agencies that are very much more expensive to the member. It is possible for us to do this by reason of the fact that the principal that constitutes the warp of our construction is co-operation—and this co-operation constitutes an asset that is beyond even the largest money price. Finally, we believe that there is no factor that is drawing the members of the Chicago

Medical Society so closely together, developing fraternalism and a broader feeling among the members than the existence and work of the Medicolegal Committee.

Very respectfully submitted,
W. A. Evans,
C. S. Bacon.

Dr. F. R. Green reported as follows in behalf of the Organization Committee:

Report of Organization Committee.

As chairman of the Organization Committee of the Chicago Medical Society, I beg to submit herewith the following report:

The Organization Committee, consisting of one member from each of the eleven districts of the county, began its work at the beginning of the fall work of the Society. The plan of work adopted was that of subdivision of territory, and the appointment of district subcommittees for the work of personally interviewing each regular physician, resident in the district, who was not a member of the Society and was a desirable candidate. For the purpose of obtaining as accurate a list of practitioners as possible, copies of the State Board of Health Reports were furnished each member of the committee, as well as mailing lists of the Society Bulletin, forming a roster of the membership of the Society. From this data the names of the non-members in each district could be obtained, and by subdividing these among a subcommittee of suitable size, the canvassing of the entire county could be quickly and thoroughly done. This work has been carried on during the winter, with various degrees of completeness in the different districts. From all available data, as lists of non-members, reports of members of the committee, etc., the following conditions exist at present in the various districts:

District No. 1, North Side.—Dr. Mortimer Frank.

This district is in a fairly complete state of organization. The district is subdivided and each subdistrict is in charge of a local subcommitteeman. The local Society has held regular meetings, and the attendance is increasing. There are in this district 163 men whose names are given in the Board of Health Reports who are outside the organization. As I shall show later on, however, these figures are capable of about one-third reduction.

District No. 2, North Shore.—Dr. G. E. Baxter.

The district is divided and local committeemen are at work. There are in this district 70 regular men outside the organization.

District No. 3, Evanston.—Dr. W. E. Ballenger.

Organization in this district is practically complete. There are at present only 7 desirable non-members practicing in the territory. The district organization committee is in existence and is working energetically.

District No. 4, Northwest.—Dr. L. J. Pritzker.

This district contains 135 regular practitioners who are non-members. The district has been subdivided, but no reports have been received from the subcommitteemen.

District No. 5, West Side.—Dr. J. A. Robison.

This district has been subdivided and the local committee is at work. The medical population here is large, and there are at present 363 regular non-members in the district.

District No. 6, Aux Plaines.

This district includes Oak Park, Maywood, etc. No report has been received from this territory since last fall, but it is very well organized. Under Dr. W. R. Livingstone, the former secretary of the Aux Plaines Society, the work was practically completed. There are at present few men in this district who are not members of both the general and the local Societies.

District No. 7, Lawndale.

Little work has been done in this territory, but the medical population is not large. The directory shows only 40 non-members in this district.

District No. 8, Stock Yards.—Dr. R. J. Tivnen.

This district is well organized for work, though the organization is not complete as yet. The territory is subdivided and the men are being brought in. There are 113 non-members in this district.

District No. 9, Southwestern.—Dr. F. R. Green.

This district has a strong and active Society, which was in existence before the present plan of organization was inaugurated. The district is divided among ten subcommitteemen, many of whom have practically completed the work in their districts. Out of a regular medical population of 131 there are still 21 men who are not members of the general Society.

District No. 10, South Side.—Dr. Wm. Cuthbertson.

This district, large in extent and having the largest medical population of any of the subdivisions of the county, has still a large amount of work to be done. No report of subdivision has been made. There are at present 420 non-members in this district.

District No. 11, South Chicago.—Dr. C. F. Swan.

The medical population of this district is limited. The local Society, composed of members of the Chicago Medical Society, has 21 members. There are 41 non-members in the district.

Summarizing the various districts, the reports show the following figures:

	Non-members.
District No. 1	163
District No. 2	70
District No. 3	7
District No. 4	135
District No. 5	363
District No. 6	...
District No. 7	40
District No. 8	113
District No. 9	21
District No. 10	420
District No. 11	41
Total for County	1,373

Less 33 per cent reduction for errors, removals, deaths, men not in active practice, men

not desirable, etc., which experience has shown is a fair estimate for these various factors, leaves a net total of 816 regular practitioners resident in the county who are eligible for membership, and are still outside of all Society lines. The present machinery for organization, if completed in each district and vigorously used, should bring all the non-members who are desirable into the county organization during the next year.

1. Get out general practitioners.
2. Put young men to work on organization.

Respectfully submitted,
Chas. F. Swan,
Wm. Cuthbertson,
John A. Robison,
M. Frank,
G. E. Baxter,
W. E. Ballenger,
L. J. Pritzker,
R. J. Tiven,
F. R. Green, Chairman.

Dr. D. J. Doherty presented the report from the Board of Trustees as follows:

Report of Trustees.

June 15, 1904.

In compliance with Chapter 4 of the By-Laws, your Board of Trustees presents its report for the fiscal year, beginning June 15, 1903, and ending June 15, 1904.

I. Financial.

Cash on hand June 15, 1903:

Current fund	$2,889.92
Building fund	6,350.43
	$9,240.15

Receipts.

Initiation fees	$1,108.00
Annual dues	5,824.00
Interest	46.64
Subrent of hall	135.00
	$7,113.64

Expenses.

Assessment to State Medical Society	$1,352.50
Operating expenses	3,676.15
Card index direct'y Chicago physicians	246.31
Typewriting machine and desk	148.30
Flowers for funerals of ex-Presidents.	52.00
Expenses of Medico-Legal Committee..	30.38
	$5,505.64

Operating Expenses.

President's office	$157.15
Treasurer's office	237.84
Secretary's office	140.43
Honoraria for secretary and treasurer	500.00
Reporting proceedings	240.00
Branch societies	292.25
Rent	994.00
Printing and mailing Bulletin	513.95
Bookkeeper and stenographer	350.00
Commissions and custodian fees	137.65
Telephone	62.80
Sundries	50.08
	$3,676.15

Or about 52 per cent of receipts.

Assets.—Money.

Cash in building fund	$8,612.50
Cash in medico-legal fund	1,235.00
Cash in current fund	2,351.49
Deposit in postoffice	50.00
Total cash	$12,248.99
Bills receivable (unpaid dues)	521.00

Assets.—Chattels.

10 microscopes, 1 stereopticon projection apparatus, typewriting machine, furniture and carpets, card index directory, etc.

Liabilities.

None.

The trustees believe that economy can be practiced during the coming year in the following items:

1. More stringent economy should be enforced in the executive offices.

2. The payment of commissions for collecting will be avoided if members will live up to the simple business principle of promptly paying their dues.

3. The expense of reporting the proceedings of the Society should be borne by the State Medical Journal.

4. Finally and most important, the state assessment should be reduced to $1.00 per caput. Our delegates to the recent state convention were not able to accomplish this reduction, but the subject should be constantly agitated and unremittingly pursued to a successful issue.

II. General.

The question of a suitable meeting place for the Society has occupied much of our thought and time. All recognize the drawback of our present hall and the fact that the building ordinances are not fully complied with, but it is almost impossible to find a satisfactory one for a rental within our income. After much investigation we have taken a lease of Booth Hall, on the third floor of the Northwestern Building, for $820 per annum. This hall seats about 200 and we have a smaller hall for the affiliated societies. We have the further privilege of the grand hall for gala meetings.

The use of these new quarters makes it necessary for us to dispose of the furniture which we so lavishly acquired some six or eight years ago. We hope to be able to unload it on our new landlord on satisfactory terms.

During the year your trustees held ten regular and three special meetings. They feel that they have conscientiously tried to safeguard your interests. They rejoice to be able to congratulate you on the flourishing condition of the Society and on the healthy professional spirit among its members. They feel warranted in saying that with a few more years of such work as you have done in the past two years, the Society will include in its membership all desirable physicians in Cook county; will exercise the influence in public and medical matters which its numbers and character deserve, and

will have acquired a suitable and permanent home for its abiding place.

Respectfully submitted,
Frank S. Johnson,
Wm. L. Baum,
David J. Doherty,
Trustees.

Dr. Frank X. Walls reported as Secretary of the Society:

Report of Secretary.

June 15, 1904.

The Chicago Medical Society has completed a highly prosperous year. The scientific value of the contributions and the attendance at the meetings, together with the general interest that has been displayed by the members of the Society, have not been exceeded during any preceding year.

The Constitution of the Society that was adopted during the latter part of the preceding year has been well tested during the current year, and has been found of greatest value, particularly in that there has been a more careful and at the same time more expeditious consideration of the business of the Society.

Due in great part to the activity of the Committee on Organization, the membership of the Society has increased to more than 1,500, and the returns each member obtains for his annual dues of $5.00 are so great that so soon as the advantages of membership in the Society are pointed out, every reputable practitioner in Cook county will be enrolled on our roster. The opportunity for a post graduate course of instruction that is open to all members in the general and in the affiliated societies, the social attractions in attending the Branch Societies, the proceedings of the county and state societies, the benefits of the medical defense fund, as well as the general advantage that must accrue from a completely organized profession, are some of the features that make membership in the Society so desirable.

During the current year there have been held two special meetings, seven joint meetings and twenty-three regular meetings—in all thirty-two meetings. The total attendance has been 5,560, an average attendance of 173. There have been elected four non-resident and 220 resident members, a total of 224. The number of members who resigned during the year has been 26, 51 have been suspended for non-payment of dues, and 8 have died. The membership at present consists of 99 non-resident members, 108 life, honorary and emeritus members, and 1,305 resident members, a total membership of the Cook County Medical Society at the present time is 1,512.

Dr. R. B. Preble delivered the presidential address, and the tellers announced the result of the election as follows: Dr. J. B. Murphy was elected President for the coming year, Frank X. Walls, Secretary, and the following members were elected as Councilors to serve for three years: Drs. R. B. Preble, M. L. Harris, A. D. Bevan, James H. Stowell and I. N. Danforth.

Dr. J. B. Murphy was then conducted to the chair and thanked the members of the Society for his election.

At a meeting of the Society held May 25th, the following paper was read:

The Radical Cure for Hernia.

By Dr. Alex. Hugh Ferguson, Prof. Clinical Surgery at the College of Physicians and Surgeons Illinois University.

In aiming at a cure for hernia we should try to imitate nature as closely as possible. It is in this that the beauty of the science of surgery lies. The artistic part of it consists in so applying our handy work as to restore nature. The aim for the typical operation for the radical cure of hernia is to restore the different structures in the inguinal region to as near a natural position as possible.

In order to do that we must not raise the cord out of its bed. We have no anatomical reason for doing so; no physiological reason will support it, and there is no practical reason in surgery that admits it. Consequently, the cord should never be raised out of its bed; even though the result should be equally as good as by leaving it in its position. I take it for granted that you all know that it is wrong for any young person to be wearing a truss if she or he can at all be operated upon. Taking that into consideration our operations are now being done much earlier than they were years ago, so that the typical operation for the radical cure for hernia is applicable to a larger number of cases than any other kind. The neglected cases of hernia are a disgrace to the medical profession.

They should never be neglected and come to operation after wearing a truss for years. That should be a thing of the past.

In my operation I begin the skin incision, in an adult, about an inch and a half below the anterior superior spine. I find it necessary to expose that point beneath the aponeurosis of the external oblique to get at the deficient origin of the internal oblique, which usually, is at about that point. I prefer to make the incision slightly semi-lunar and terminate over the conjointed tendon by making a flap and turning it down, all the structures beneath are exposed freely, and there is less danger of infection being carried into the wound from the edge of the skin, as we are likely to do with a small straight incision. It is an advantage to use the curved incision although it is not absolutely necessary.

This exposes the external oblique which is split up commencing at the external ring, the inter-columnar fibres being cut, until we expose the lower border of the internal oblique. Then we reflect these flaps and see the inguinal canal. The sac is opened at the internal ring, high up. If omentum or bowels are in the sac it is well to throw the patient into the Trendelenburg position, for then the contents of the hernial sac may be easily pushed out of the way with a piece of gauze. Adherent omentum is dealt with in the usual way. If not adherent, I do not remove it because that adds gravity to the operation. The neck of the sac is separated up well for about an inch or an inch and a half and the sac is pulled out a little. A favorite way of

tying off the sac is to split it and put a puckering stitch in the inside. If the opening is very large, instead of ligating the sac it may be sutured. It will be seen that the stump recedes; if it does not do so readily, push it back with the finger. We then have a depression at the root of the cord and a slackened condition of the transversalis fascia on both sides of the cord. This slack must be taken up. Usually I take it up when I am sewing the border of the internal oblique to Poupart's ligament either with interrupted or continuous suture. For purposes of demonstration I frequently suture like structures to like separately.

The next step in the operation is to define the conjoined tendon, cremaster muscle and also what is lower border of the internal oblique. My way is to pass the finger beneath the conjoined tendon, and follow it, using, if necessary, the knife to liberate its fibres into the muscular structure of the internal oblique and then to Poupart's ligament. All the muscular tissue you find below the thick border belongs to the cremaster, and all above belongs to the internal oblique. In that way I can differentiate a more extensive deficiency in the origin of the internal oblique than some believe exists. The cremaster muscle is not removed.

The next step is the suturing of the internal oblique muscle to the inner aspect of Poupart's ligament. That is very simple and can be done by continuous or interrupted suture or by autoplastic suture recommended by Dr. MacArthur. The external oblique is sutured over that and the skin coaptation completes the operation.

I would like to point out the function of the internal oblique muscle in this region. The average length of Poupart's ligament is four and three-eighth inches. In the male the internal oblique muscle arises from a little more than one-half of Poupart's ligament; in the female from two-thirds; which is one of the reasons why an oblique inguinal hernia is more frequent in males than in females. The function of this muscle is to cover over the weakened area in the abdominal wall caused by the descent of the testicle through the transversalis fascia. It is the one active structure in this region that can contract to protect the internal ring during increased intra-abdominal pressure, because it is the only muscular structure there. If that muscle is perforated or the border pulled up as in the Bassini operation the muscle no longer protects the ring which is the reason, in my opinion, why the 6.4 per cent returns in the Bassini take place at the outer angle of the wound. If the internal oblique is sutured down to Poupart's ligament no such weak place is left, but the muscle will contract and cover the ring. By removing the sac and taking up the slack in the transversalis fascia, suturing the border of the internal oblique to Poupart's ligament you have imitated nature as perfectly as possible and the more intra-abdominal pressure you have after that, after restoring the valve-like position of this muscle at the internal ring, the tighter the valve will close and the hernia cannot recur.

We find, however, that the structures are not always normal. The ligament of Sir Astley Cooper immediately below the internal ring gives away with long continued pressure and the deep epigastric vessels are then found low down and the opening of the ring very large. The border of the internal oblique and the conjoined tendon are often obliterated and Poupart's ligament may be thinned out like tissue paper. Then you cannot perform a typical operation, because there is a too great destruction of tissue, but must resort to a plastic procedure. Here the method of Halstead, bringing down the sheath of the rectus muscle, or that of Bloodgood, may be selected. And, when the deficiency is extensive, I have resorted to the utilization of the sartorius muscle, to strengthen this region. But these expediencies are atypical operations and not called for in the vast majority of cases.

I find the method devised by Fowler useful at times; especially in connection with and the non-congenital hernias, descent of the testes where we wish to furnish a shorter route to the vessels and the vas deferens. Split through the transversalis fascia behind the cord; tie the deep epigastric vessels in two places, cut between them and drop the cord completely inward and backward behind the transversalis fascia down to the pubic bone. Then allowing the cord proper room at the pubic bone, sew up the transversalis fascia and continue the suture until the old internal ring is obliterated. This gives a little shorter route for the vessels and the vas deferens and you get a little farther descent of the testis as well as an excellent cure of the hernia. I have utilized this method many times.

I have met with one peculiar congenital defect in this region in a semi-idiotic overgrown boy in whom the internal oblique muscle ran in the reverse direction. It had a fibrous attachment the entire length of Poupart's ligament, and the fibres of the muscle ran upwards and inward, instead of inward and downward. The hernia was simply alongside the rectus muscle. I closed it in the reverse way. The border of the internal oblique muscle was sutured to the border of the rectus muscle and it made an artistic piece of work.

With regard to the direct form of hernia it of course passes through the inguinal region within and below the deep epigastric vessels, and carries before it the conjoined tendon, or slips beneath its border, and is situated above the pubic bone. Let me say that usually there is no conjoined tendon that can be differentiated. It is thinned out and you cannot perform a typical operation. It must be a plastic procedure and I prefer to split the border of the rectus muscle and sew it down to Poupart's ligament as recommended by Bloodgood. But this is not at all applicable to the cure of oblique inguinal hernia.

Results. In the six and a half years I have been performing my typic or anatomic operation there has been no return to my knowledge and no deaths (one death from old age, (74), cystitis, enlarged prostate, diseased kidneys and hernia

strangulated). Counting the cases of other surgeons with my own we can safely say that we know of no returns in over two thousand (2000) cases.

The following is some of the recent literature on hernia:

Radical Cure of Inguinal Hernia.

T. H. Wells (Lancet, Feb. 2, 1901.) describes Symonds operation for radical cure. It consists of (1) a two and a half incision in the linea semilunaris through the skin, fat, superficial and deep fascia, ending over the external ring; (2) deepen the upper one and a half inches through the abdominal muscles, transversalis fascia, and subperitoneal fat. After having arrested the hemorrhage, open the peritoneal cavity; (3) explore sac with finger and replace intestine; (4) insert forceps along the palmar surface of finger, seize the apex of the sac, invert it, and bring it out into the upper wound. (5) Twist the sac itself a few times to obliterate its cavity, and stitch it to the peritoneum; (6) stitch up the external ring; (7) close the wound by apposing all the structures layer by layer. The following advantages are claimed for the operation: First, it is expeditious. Second, the neck of the sac is obliterated high up. Third, the inverted sac aids in forming a firm scar. Fourth, the sac and contents can be explored quickly, and, if necessary, the sac opened below with safety and expedition. Fifth, the incision allows any method of closing the inguinal canal and external ring desired by the operator.

Recurrence of Inguinal Hernia.

B. M. Ricketts (American Med. May 4, 1901) states that the average percentage of recurrence in inguinal hernia for 34 operators will be 5.58 per cent. He bases this estimate on 6,027 cases reported by 34 operators. The preferred operations for the radical cure of hernia are—the Marcy-Bassini, Macewen's, Andrews', Halsted's, Ferguson's, Phelps', and Bloodgood's. He finds that 95 per cent of herniotomies are performed according to the Marcy-Bassini method, or its modification and 3 per cent by all other methods in which absorbable or buried sutures are employed, and in 2 per cent wire is used. The wire has been used in about 1000 operations. Additional causes of failure in operations for inguinal hernia are—(1) deficient origin (attachment) of the internal oblique; (2) pressure on the abdominal walls by the truss (where one has been worn); (3) the length of time that the hernia has existed, especially in the aged.

In making a radical operation do not divide fibres, blood-vessels or nerves. By preserving the vitality and innervation of the tissue, the repair is facilitated and hastened. Cut out all the fat.

Radical Cure of Inguinal and Femoral Hernia.

W. B. Coley (Annals of Surgery, July, 1901) reports 845 cases operated according to the author's modification of the Bassini method, which consists of the introduction of a single suture of chromicized kangaroo tendon (in place of silk) above the cord, bringing the internal oblique in apposition with Poupart's ligament, thus making the cord come out between the two upper sutures. Before the advent of rubber gloves, 96 per cent of cases healed by primary union. Since then, in 200 cases, only one suppurated, and that was a streptococcus infection from the skin of the patient. In uncomplicated cases the time of operation was from ten to twenty minutes. In 776 cases there were only six relapses. In the entire series of 845 cases there were only two deaths, one due to ether pneumonia, the other to intestinal obstruction, probably a volvulus.

Of the inguinal hernias, ten were well from eight to nine years after operation, thirteen from seven to eight years, twenty-five from six to seven, twenty-eight from five to six, fifty-four from four to five, eighty-nine from three to four, 104 from two to three and 172 from one to two years after operation.

Radical Operation of Hernias in Children.

Maass (Deutsche Mediz Wochenschrift, Mar. 7, 1901) says that the essential requirement in the radical operation of infantile inguinal hernia is careful, conservative isolation of the sac from the spermatic cord. The sac should be opened only in cases of strangulated or adherent hernias. He uses medium-sized silk, which is removed on the sixth day and the wound dressed with iodoform-collodion. By not opening the sac the risk of peritoneal infection is removed.

Radical Cure of Umbilical Hernia.

W. J. Mayo (Annals of Surgery, August, 1901) describes his operation, as follows: 1. Transverse elliptical incisions are made around the umbilicus and hernia, extending down to the base of the hernial protrusion. 2. Clean the surfaces of the aponeurotic structures an inch and a half in all directions from the neck of the sac. 3. Open the sac in a circular manner at the neck; if intestine is present, reduce it after separating the adhesions. Ligate the omentum and remove it with the entire sac of the hernia. 4. Grasp the margins of the ring with forceps and approximate. Whichever way the overlapping is more easy of accomplishment, suggests the direction of the closure. 5. For this approximation an incision is made through the aponeurotic and peritoneal structures of the ring extending an inch or more transversely to each side and the peritoneum is separated from the under side of the upper flaps thus formed. 6. Beginning from one to one and a half inches above the margin of the upper flap, three or four silver wire mattress sutures are introduced the loop firmly grasping the upper margin of the lower flap. Sufficient traction is made on these sutures to enable peritoneal approximation with running suture of catgut. The mattress suture is then drawn into position, sliding the entire lower flap into the pocket previously formed between the aponeurosis and the peritoneum above. 7. The free margin of the upper flap is fixed by catgut sutures to the surface of the aponeurosis below, and the superficial incision closed in the usual manner. The lateral approximation is carried out by sliding one side under the other in the same manner. (A number of operators have independently worked out this same idea, and all report favorable results.)

J. H. Blake (Medical Record, May 25, 1901), writing on the same subject says, that umbilical hernias may be cured radically by uniting the borders of the recti by the methods now employed for closing median celiotomy wounds. If there is separation of the recti, the method of operation is left to the choice of the operator. The methods are: 1. Lineal approximation of the margins of the fascia, or fascia and muscle. 2. Interlacing of fasciculi of the inner portions of the recti after splitting their sheaths. 3. Involuting the abdominal wall in the middle line by a method resembling the Czerny-Lembert method of intestinal suture. 4. Flap operation. After the removal of the sac the hiatus in the abdominal wall is closed by reflecting flaps from the sheaths of the recti muscles and peritoneum (Mayo). 5. Lapping the abdominal wall; the author's method consists of the division of the linea alba in the median line above and below the sac for the necessary distance, with or without excision of the ring and a portion of the linea alba. The entire wall on one side is then lapped over the other and sutured there, so that the ventral surface of one side is in contact with the dorsal surface of the other. Advantages—doubling of the abdominal wall at the hernial site; broad surface of union; breaking of the lines of suture; broad surface of union; obliteration of the separation of the recti; and reduction in size of the abdomen.

Radical Cure of Hernia.

H. Toussaint (Arch. Prov. de Chir. 1902) reports a series of 60 cases of radical cure of hernia, in one of which a gonorrhoeal phlegmon of the vas deferens was provoked by the operation. The gonorrhoea dated back eight years.

New Method for the Radical Cure of Hernia.

J. Poullet (Lyon Medical, Nov. 24, 1901) describes a new method which does not require rest in bed. The essential features are: 1. The peritoneal cavity is not opened; 2. There is no dissection of the sac, only a single cut of the bistoury is necessary for incising the skin. The rest is done with the fingers, a tubular needle and a large metallic thread. The latter serves as a subcutaneous truss which is inserted once for all. It does not cause the patient any inconvenience. He has operated 400 times by this method with but few recurrences.

An incision two or two and a half inches long is made over the hernial orifice. The neck of the sac is isolated with the fingers and grasped with a long forceps to prevent its descent. A fine tubular needle is passed through the neck five or six times below the forceps, the metallic suture is passed through the needle, not including the vas deferens or the vessels and nerves of the cord. This assures a satisfactory separation of the contents and the empty sac. In the second stage the two ends of the suture are made to traverse the whole abdominal wall, except the skin, from within out to about 15 m.m. from the upper border of the external ring. To do this the left index finger is introduced deeply into the inguinal canal, and the needle passed between it and the abdominal wall, which is perforated from within, thus implanting the two ends of the suture about an inch apart. The third step is to close the canal by means of the two ends of the same suture. The finger still remains in the canal its pulp under the deep surface of the abdominal wall to guide the curved needle which perforates it from within out or from without in. This needle brings each suture successively through the two fibro muscular borders of the opening to be closed, each border is traversed three or four times according to the size of the opening. Care must be taken not to tighten the suture at the bottom until the last insertion has been made below the ring in the fibro-periosteal tissue near the pubic spine, the finger should remain in the canal until the last passage of the needle so as to ascertain how much tissue will be included in the metal loop. Bring the two ends together without pulling on the suture nor trying to bring the pillars in contact, which will cause the suture to cut through. The two ends are twisted together and a perforated shot placed on the ends so that the tissues will not be lacerated. The skin is sutured with wire.

Poullet operates without assistance. Time of operation, about fifteen minutes. He uses a steel wire, 3-10 .m.m. in diameter, 39 inches weighs 1 gram; seven or eight inches are needed for each case. The same method is used for all hernias. The first dressing is made six days later when the skin has united and the cutaneous suture may be removed, as a rule.

Results Following Radical Cure of Inguinal Hernia.

O'Connor considers this phase in the Lancet of May 31, 1902. He studied 350 operations for the radical cure of inguinal hernia, 140 of which were performed by Halsted's, 120 by Kocher's, and 90 by Bassini's and other methods. He has abandoned the Halsted method because of too frequent orchitis with subsequent atrophy incident to the removal of veins, he thinks. He deems transplantation of the cord questionable surgery. He does not favor buried unabsorbable sutures, especially silk. The keystone, he says, to any radical cure is the approximation of the conjoined tendon to the lower part of Poupart's ligament or Gimbernat's ligament. Kocher's method has given him as good results as the others; if recurrence takes place the patients are no worse off.

An improved operation is described as follows: A 4-inch incision is made over the inguinal canal, the sac is isolated, opened, and its interior inspected and palpated well into the abdomen. Next, an assistant draws the sac forcibly downwards, and the operator, while retaining his left index finger within the sac near to the inguinal ring in order to prevent intestine or omentum getting caught, transfixes and ligates with catgut and cuts away the distal portion. Before complete separation takes place, a pressure forceps is applied to its proximal end in order that a final inspection may be made before it is allowed to fly back. The conjoined tendon and Gimbernat's ligament are isolated and with the left index finger in the canal to act as a guide and protector of important relations, four strong fishing gut sut-

ures are inserted by a curved hernia needle about half an inch apart, from within outward, through Gimbernat's ligament and the external oblique, the ends being retained outside the aponeurosis. The free ends are threaded in rotation on a hernia needle with an opposite curve, and are carried from within outwards well into and through the substance of the conjoined tendon, those ends being similarly retained outside the sheath of the tendon. A straight aneurism needle is passed through the suture hole in the tendon, passed across and emerges through the corresponding suture hole in the external oblique. The end of this portion of the suture is attached and drawn across and out through the aperture of entry of the needle; thus, the two ends emerge from the same hole in the sheath of the tendon and form a circular submuscular suture. When the four are thus applied, the assistant draws the cord downwards and the sutures are tied with sufficient force to draw the tendon backwards in front of the vas to Gimbernat's ligament, care being taken not to compress the vessels of the cord. The ends are snipped off and the knots retreat into the substance of the conjoined tendon and are sealed over by a catgut suture through each aperture. The skin wound is united with a continuous blanket suture.

Radical Cure of Inguinal Hernia in Infants.

H. J. Stiles (British Med. Journal, Sept. 7, 1901) prefers the Mitchell Banks operation, the essential step of which is the removal of the patent funicular process, its neck being ligated at the level of the internal ring. 1. Exposure of the cord and its coverings and the pillars of the ring. 2. Isolation, ligature and excision of the funicular process. 3. Closure of the ring. 4. Suture of the wound. Infants as young as two months stand the operation remarkably well. A child that walks should be kept off its feet for three weeks. Nursing infants can be carried about with safety.

W. E. Coley (Annals of Surgery, June, 1903) reports his results in 1075 operations for the radical cure of inguinal and femoral hernias. For femoral hernia he employed the Bassini operation in 16 cases, and the purse-string suture in 50 cases. In the last group no relapses have occurred. He performed 181 operations on females for inguinal hernia with no relapse and no mortality. He does not transplant the round ligament but simply closes the canal over it. In 67 operations for femoral hernia there was no mortality but one relapse due to delayed union. 46 cases were well from one to ten years, and 34 from two to ten years after operation. Of 937 cases of inguinal hernia, the cord was transplanted according to the Bassini method with kangaroo tendon for the buried sutures in 917 cases, with ten relapses. In a series of 1,003 cases, the results were as follows: 647 cases were well from six months to 11 years; 460 were well from two to 11 years. He concludes that patients well one year after operation will remain well, in all probability; and that after two years they may be considered permanently cured. The percentage of relapses after the Bassini operation is slightly more than one. There were six relapses in twenty cases of inguinal hernia in which the cord was not transplanted.

As to the technic of the operation, Coley says that he always places a single suture in the internal oblique muscle above the point at which the cord passes through. It aids in preventing relapses. The wound is dressed with 10 per cent iodoform gauze and a spica bandage. In children under fourteen, he uses a plaster spica. The patient remains in bed two weeks, but wears the bandage for four weeks, after which no support is worn. He advocates strongly the use of kangaroo tendon as a suture material.

The mortality in these 1,003 cases was only two deaths, less than 1-5 of one per cent. He has performed over 500 operations without a single death. In the Vienna clinic there were three deaths in 804 cases. At the Johns Hopkins Hospital, one death in 459 cases; at Carle's clinic, in Rome, two deaths in 1400 operations, and one of these was from pneumonia.

Frank Martin (Phila. Med. Jour., Nov. 22 1902) has operated on 116 cases and recommends the radical cure even in old patients. These can be operated either by local anesthesia or by subarachnoid anesthesia. He has used the latter in four cases, one a confirmed alcoholic aged 68, showing marked cardiovascular changes, chronic bronchitis and nephritis. The hernia was of twenty years standing. There was no relapse after 18 months. Cocain was also used in a number of patients advanced in years.

Willy Meyer (Annals of Surgery, Nov., 1902) advocates the use of silver filigree for the closure of large hernial openings in cases that cannot be treated satisfactorily by one of the usual methods of operating. The net is made in various sizes and shapes to fit the opening. That used for inguinal hernias is an acute-angled triangle with the base turned toward the median line. A small opening in the base of the triangle is provided for the passage of the spermatic cord. It rests upon the internal oblique above and is sutured to Poupart's ligament below. The author used the method three times with satisfaction. The patients were fat, and the local conditions gave little promise of a cure by the ordinary methods. One patient died of some intercurrent trouble; the other two have gone for eight and eighteen months without a relapse. The net has not caused any inconvenience.

G. Gross (Arch. Prov. de Chir., May-June, 1903) says that when determining the question of radical cure for hernia, two conditions may confront the surgeon. The bowel is either free in a well-formed sac, or it is complicated by adhesions. In some cases we have to deal merely with accidental adhesions of an inflammatory nature in the sac, and while their separation may be tedious and difficult, it can usually be accomplished. In other cases the nature of the adhesions is entirely different. The loop of large bowel is not completely covered by peritoneum, hence the sac is incomplete and the hernial protrusion adheres closely by its extra-peritoneal surface to the neighbor-

ing cellular tissue. This special feature has been known for a long time and cases presenting it have been called hernias by sliding as distinguished from those by displacement. The former are relatively serious on account of the difficulty of reduction as well as performing a radical cure. This class of hernias is rare. The etiology is uncertain. The symptoms are indefinite. They are not reduced easily. They are either irreducible or only partly reducible.

The operation for radical cure of hernias presents special difficulties, both immediate and remote, on account of the location of the gut outside of the sac and of the vascular adhesions, which seldom permit of easy reposition of the intestine. Freeing these adhesions is an unusually delicate procedure. This should be done by stripping up; laceration of the enclosed vessels will lead to consecutive gangrene of the intestinal wall. It is best to detach the adhesions from the scrotum and not from the bowel. If adhesions cannot be freed, the bowel should be reduced by gentle pressure, or if there is nothing in the sac, ligate or suture and then resect. Colopexy is indicated when reduction is difficult or impossible.

Tansini (Lancet, May 24, 1902) emphasizes the importance of aseptic precautions in the operation for the radical cure of hernia. Success is frequently endangered by the occurrence of slight suppuration. He believes very thin gold wire to be the ideal suture material. He uses thick wire for the deep sutures; much thinner wire for the aponeurosis, and ties off the sac with the thin wire. The ends of the deep sutures are seized with dissecting forceps and turned into the thickness of the internal oblique muscle. The ends of the superficial sutures are left. The patients remain in bed for a week or ten days, and there is only one dressing for the purpose of removing the skin sutures, which may be of either silk or gold wire. Torsion of the blood-vessels is preferred to ligating. He has also devised a number of specially constructed instruments so that it is not necessary to touch the wound at any time, thus minimizing the danger of infection. The time of operation is ten minutes.

Results After Bassini Method.

Matanowitsch (Beitr. z. klin. Chir. XXXIV, 1902) reports 120 operations done according to the Bassini method, 4 by Czerny's method and 2 by Kocher's. There was no recurrence in 9 cases after six years; in 14 after five years; in 19 after four years; in 26 after three years, and in 38 after two years. Three true relapses occurred, a percentage of 2.8. He cites the following table of relapses occurring in the practice of various operators. Bassini, 593 cases with 28 relapses; Rotter, 66 cases with one relapse; Coley, 959 cases with 9 relapses; Carle, 601 cases with 36 relapses; Czerny's clinic, 117 cases with three relapses; a total of 2032 cases with 74 relapses (3.6 per cent) after the Bassini operation.

After the Kocher operation: Lebensohn, 111 cases with four relapses; Hirschkopf, 125 cases with one relapse; Trzebizky, 53 cases with two relapses; Carle 239 cases with 12 relapses; a total of 528 cases with 19 relapses (3.8 per cent).

S. Goldner (Archiv. f. klin. Chir. No. 1, 1902) reports 800 cases operated on by the Bassini method. In 466 cases examined from two to six and a half years after the operation, 35 relapses were found (7.5 per cent), including slight protrusions in the upper angle of the cicatrix and those in which a crural hernia appeared after the radical operation for inguinal hernia. Excluding these cases the percentage of relapses is only 4.9 per cent (23 cases). He concludes that it is less important to prevent funnel formation of the peritoneal stump, than to avoid the formation of a defect in the cicatrix into which the peritoneum may slip. It is not the transplantation of the cord, but its perfect isolation that is of importance. He cites several cases in which the cord was not transplanted and no relapse occurred. Of the 434 cases in which no relapse occurred, 418 were non-incarcerated herniae, twelve incarcerated, and four operated on for a relapse. Of 58 cases of infantile herniae only one relapsed.

The author points out that the radical operaiton for inguinal hernia may favor the development of a crural hernia, and refers to a modification of Bassini's suture in the radical operation for inguinal hernia in the female, the purpose of which is to close simultaneously the inguinal and crural openings. The internal oblique and transversalis muscles are sutured to Poupart's ligament and the periosteum of the horizontal ramus of the pubes. In 23 cases operated on after this method only one relapsed.

Three deaths occurred in the series of 800 cases; one during narcosis; one from pulmonary embolism eleven days after the operation, and the other from embolism associated with varicosities in the subcutaneous connective tissue of the right thigh with the formation of thrombi in the varices.

New Method for the Cure of Femoral Hernia.

J. H. Nicoll (British Med. Jour., Nov. 8, 1902) describes this method, the distinguishing features being: Using the sac to form a buttress on the abdominal aspect of the ring, similar to the procedure described by MacEwen in inguinal hernia. Closing of the femoral ring by fixing the anterior boundary of the canal, Poupart's ligament, to the posterior, the ramus of the os pubes, by drilling through the latter. The sac is emptied of its contents, bisected longitudinally from fundus to neck; an opening is made in one half near the neck of the sac which permits of interlocking of the halves by putting one half through the opening of the other. The whole sac is then reduced through the femoral ring into the extra-peritoneal space, thus forming a buttress at the orifice of the canal.

The femoral ring is closed as follows: A bone-deep incision is carried from the femoral vein along the pubic ramus to the origin of the pubic spine, dividing the pubic portion of the fascia lata, the origin of the pectineus and the periosteum. The length of the incision varies from one to one and a half inches. The periosteum is detached to a limited extent and re-

tracted. Two drill holes, one-half inch apart, are made near the upper edge of the bone. A loop of stout catgut, or other absorbable material, is passed through one of the openings, an ordinary surgical probe provided with an eye being used for this purpose. The loop of the ligature is then divided. One end is threaded in a large surgical needle and passed as a mattress suture through Poupart's ligament. The other end is passed through the ligament higher up, avoiding the deep epigastric artery and the spermatic cord. In very large herniae the loops may be made to diverge in the ligament so as to gather in the margins of the opening. By means of the probe both ends are drawn through the second drill hole in the bone. The ends of each loop are tied tightly and separately over the front of the bone, thus bringing Poupart's ligament down to the posterior superior surface of the bone and fixing it firmly in contact with the surface and absolutely closing the femoral ring as far as desired. The detached margins of the pectineus and the pubic portion of the fascia lata are united by interrupted cat gut sutures to the anchored Poupart's ligament to ensure closure of the ring.

Radical Cure of Sliding Hernia.

Savariaud (Rev. de Chir.) returns the sac without resection. It is important to separate the sac thoroughly and to make proper reduction. The dissection is best accomplished by means of a sterilized gauze pad.

New Suture for Radical Cure of Hernia.

L. L. MacArthur (J. A. M. A., Nov. 2, 1901) uses a suture consisting of a strip of the tendinous portion of the external oblique muscle. A bunch of the white fibres which enter into the formation of the internal pillar of the ring are split off from the edge of the internal flap of the external oblique, quite up to their insertion of the muscle belly where they are cut loose from the muscle but left attached to the spine of the pubes. This strip should vary in width from one eighth to one quarter of an inch, according to the development of the tendinous fibres. In case a Bassini is done the same strip is taken from the outer flap, the lower end of which terminates in the fibres of the external pillar of the ring. These strips are used as a suture material for a running stitch.

The author advises using a strand of No. 3 silk, one end being tied tightly to the free end of the tendon suture. The first stitch is so applied as to give the desired lumen to the new external abdominal ring; using the one terminating in the internal pillar for the first suture; the remaining one for the superficial layer and buried sutures.

The advantages of the method are: 1. Obtaining a living suture. 2. Lessening the chance of failure through avoidance of the introduction of dead tissue or foreign tissue. 3. Incorporation in the cicatrix of organized white fibrous tissue. 4. Applicability of the same procedure to other situations.

Radical Cure of Hernia.

L. Championniere, at the last French Congress of Surgery gave statistics of 1030 cases of operation for the radical cure of hernia. The three essential steps in the operation are: the reduction of the sac; the removal of the accessible omentum; reparation of the inguinal canal by overlapping the thin muscular and fascial planes. In this series seven deaths occurred (0.68 per cent); three due to pulmonary congestion; two to strangulation by an old band; one to tetanus and one to hemorrhage. There were 39 recurrences; 32 inguinal and 4 femoral, and three umbilical herniae. Of 196 cases of inguinal herniae in the female only one recurred. He attributes a large number of the reported recurrences to bad technique or too hasty performance of the operation.

Radical Cure of Umbilical Hernia.

Condamin (Arch. Prov. de Chir., 1892) opens the abdominal wall at the periphery of the hernia and continues the incision until the peritoneal cavity is reached. Then the sac, superfluous skin and umbilicus are removed in one portion. Omphalectomy and closure of the wound in separate layers complete the operation.

Radical Treatment of Umbilical Hernia.

E. Piccoli (Centralbl. f. Chir., Jan., 1900) describes his method as follows: A median incision, 10 to 12 c.m. long is made extending equally above and below the mouth of the hernial sac. The incision is deepened to the aponeurosis of the recti., Isolation of the hernial sac, especially in the region of the neck; reduction of the contents of the sac. The sac is cut at its base and the external portion resected. The partition thus created is closed by continuous sutures of fine silk. Then, with the finger, the peritoneal surface is isolated from the anterior abdominal wall, and in the latter, under the guidance of the finger, a vertical incision, upward and downward about 3 c.m., is made with scissors, changing the shape of the hernial orifice to an ellipsoid. From three to five stout silk threads are drawn through one of the borders of the opening, the threads piercing the entire thickness of the wall 2 or 3 m.m. from the border. They are united by surgical knots, the ends remaining uncut. Beginning at the central knot, one of the threads is brought underneath the opposite border and made to pierce it in its entire thickness about 3 c.m. from the free border. The same is done with the second knot. Then the two threads are drawn rather tight and tied together. This procedure is repeated with the remaining knots, and, finally, the subcutaneous cellular tissue and skin are sutured separately.

Radical Cure of Ventral Hernia.

M. M. Johnson (J. A. M. A., Dec. 22, 1900) makes an elliptical incision a little within the border of the opening in the abdomen. The skin and superficial fascia is dissected back, exposing the sheath of the rectus muscle. On the outer side a similar dissection is made an inch or more from the external oblique. The edges of the opening are trimmed and a No. 25 silver wire suture is inserted at the angle of the

opening and passed through the peritoneum, rectus muscle and skin one inch from the edge. Similar sutures are inserted at intervals of one inch throughout the length of the incision. The subcutaneous tissues are then united by a continuous kangaroo tendon suture. The deep sutures are taken up one by one and the ends of the wire wound around a pencil of ivory on either side, and drawn sufficiently tight to relieve the tension on the kangaroo tendon stitches.

Radical Cure of Inguinal Hernia.

A. M. Phelps (J. A. M. A., Dec. 22, 1900) cuts off the sac and retracts it from the operation as he would from any other abdominal operation; stitching up the peritoneum and transversalis fascia with a continuous suture of silver wire. Over the transversalis fascia and peritoneum a mattress of fine silver wire is placed and the deep layer of muscle stitched over it with a continued suture of silver wire. A small glass drainage tube is inserted down to the wire mattress. If the hernial opening is large, and there is much attenuation of the muscular coats of the abdominal wall, a second mattress of wire is placed between the layers of muscle and the superficial layer of muscle, together with the aponeurosis, are stitched over it. The cord is brought out from the inguinal canal externally and inferior to the internal abdominal ring. A notch, made by cutting with the scissors into the aponeurosis of the muscles, prevents strangulation of the cord, which lies directly under the skin in its course to the scrotum. The continued suture of fine silver wire will become encysted and remain so during life of the patient without occasioning any inconvenience. The second wire becomes encysted in the granulating tissue, preventing subsequent stretching. The silver wire is taken from pure carbolic acid and heated to a red heat by an alcohol lamp before its introduction, thus rendering it absolutely sterile.

In a paper published in the Medical Record, Feb. 2, 1901, Phelps says that transplantation of the cord external to the aponeurosis of the oblique is the proper method.

Radical Cure of Femoral Hernia.

L. W. Bacon, Jr. (Yale Med. Jour., January, 1901) describes the Gordon method, which he considers the ideal method and vastly superior to the Bassini. The primary incision begins at a point two inches from the pubic spine and three quarters of an inch above Poupart's ligament, passing first inward, parallel with Poupart's ligament as far as the hernia, or as far as the femoral canal; then turning downward in line with the axis of the leg, from the hernial sac to its lower border. Next, the anterior surface of the aponeurosis of the external oblique muscle, in the upper part of the incision, is prepared carefully for a full inch from its reflected border. The hernial sac is isolated, emptied of its contents, after which it is drawn out and freed from its subperitoneal fat. The pectineal fascia is cleaned out thoroughly in the upper part of the fascia ovales, and all the fat and connective tissue is removed from the inguinal canal. The crural vein, saphenous vein and the falciform process of the fascia lata should not be touched. The sac may be transfixed and ligated as high as possible, or resected with suture of the peritoneum.

The aponeurosis of the external oblique muscle is incised in the direction of its fibres, about three quarters of an inch above Poupart's ligament, extending from a point well above the femoral vessels at a point internal to the free edge of Gimbernat's ligament. The underlying external oblique and transversalis fascia are separated gently from Poupart's ligament, and this structure emptied, as it were, of its muscular contents as far as the incision in the aponeurosis extends. The muscles are fastened in their new position with medium sized catgut or chromicized catgut, if preferred. The incision in the aponeurosis is sutured with fine catgut and the cutaneous incision is closed with fine silk worm gut.

Operation for Inguinal Hernia.

A. E. Benjamin (J. A. M. A., April 25, 1903) describes his operation as follows: The ordinary incision for the Bassini operation is made. The aponeurosis of the external oblique is slit up to a point opposite the internal ring. The fibres of the internal oblique and the transversalis muscles are divided by blunt dissection, thus opening the inguinal canal. The aponeurosis of the external oblique is carefully and thoroughly removed from the internal oblique. The lower portion is dissected down to Poupart's ligament and the transversalis separated from the peritoneum. The cord is raised. Silk worm gut sutures are introduced in the outer side of the incision, passing through the skin, Poupart's ligament, internal oblique and transversalis muscles, on the inner side of which the loop is made. The needle reentering the transversalis and internal oblique muscles passes through Poupart's ligament and comes out through the skin to the outer and lower side of the cut, near the point of entrance. From three to five sutures are similarly introduced. These sutures pull the internal oblique and transversalis muscles below the shelving edge of Poupart's ligament and make a firm barrier against external force. The sutures are tied over rolls of sterilized gauze. The spermatic cord rests on the internal oblique. The external oblique is closed over the cord. Interrupted figure of eight sutures are introduced, bringing the external oblique in apposition with Poupart's ligament. They also approximate the skin and are tied over the gauze roll. The sutures are left in place for two weeks.

The advantages of the operation are: 1. There are no sutures to be absorbed. 2. There is no additional culture media in which bacteria can grow. 3. There are no buried non-absorbable sutures to irritate the tissues. 4. There is no necrosis from tight sutures; therefore, few, if any, stitch abscesses. 5. The gauze rolls act as elastic cushions which prevent scars from sutures. 6. The operation completely closes the breach and makes a firm wall. 7. All sutures, after serving their purpose, are removed, leaving only the natural supports.

Radical Treatment of Inguinal Hernia.

E. Estor (Semain Medical XXII, 1903). The sac is detached as high as possible and resected without previous incision of the aponeurosis of the oblique muscles. Two wire threads are then inserted in the pillars from the front backwards across the opening in the ring and then pass through the abdominal wall from behind forward, emerging well above and outside of the external inguinal orifice. The entire abdominal wall, comprising all the layers, is then drawn down and fastened over the inguinal ring, forming a solid wall of muscle and aponeurosis at that point, and leaving only as much of an opening as is absolutely necessary above the pubes for the emergence of the spermatic cord. Five parallel catgut or silk threads are then woven in about one c.m. apart to strengthen the aponeurosis, and then the skin is sutured. The author has performed this operation 24 times. The immediate results were perfect, except that in a few cases the testicle and cord appeared to be swollen for a few days; but this soon subsided without producing any further symptoms. There was an insignificant catgut stitch abscess in three cases, but he never found it necessary to reopen the wound. The reenforced abdominal wall is more solid than the normal wall, and the results to date have been fine in every respect; nearly two years in the oldest case. Eight of his patients were children.

P. Begouin (Jour. de Med. de Bordeaux, Sept., 1903) speaking of Mugraie's modification of Bassini's method, says that this operation carries the cord behind the entire inguinal canal, closing both of its walls in front of the cord and allowing the latter to make its egress through the external ring. The weak point, the internal ring, is obliterated; the cord is surrounded by resistant tissue, the crural arch, Colle's ligament, the conjoined tendon and the internal pillar.

Operation for Radical Cure of Hernia.

C. Hoffman (Zentralbl. f. Chir., Oct., 1903) describes his operation which he has performed on 45 cases during the past year with excellent results. He has noticed in all his cases of hernia that the inguinal canal has a funnel shape, the internal ring being very much dilated, probably a congenital defect, and that the spermatic cord at this point seems to be separated into its component parts, so that the hernia may find its way out through the canal by simply pushing the entire cord to one side. These findings must be taken into account in performing the operation for a radical cure as they are of importance and have much to do with the matter of recurrence of the hernia. The principle of the operation is the closure of the hernial sac within the parietal peritoneum and the establishment of a prop in the internal inguinal ring by one or more sutures, without, however, changing the position of the cord in any way.

In order to expose the hernial sac within the canal, it is necessary first to separate the cremaster muscle and the tunica vaginalis communis from the cord. This separation should be done not with the fingers, but with forceps and scissors so as to obviate entirely the occurrence of suppuration. The author does not at any time throughout the operation touch the wound, except with sterilized instruments. A skin incision is made over the inguinal canal; the fascia of the external oblique and of the cremaster muscle is split, together with the tunica vaginalis communis, so as to expose the hernial sac and the internal inguinal ring. It is neither necessary nor desirable to remove from its bed the funiculus spermaticus. Hoffman does not molest this structure at all. After thorough isolation of the sac, it is opened and emptied of its contents. The peritoneal cavity is then closed by means of a catgut purse-string suture placed on the inner side of the hernial sac in the region of the internal ring on a level with the parietal peritoneum. This suture restores the fovea inguinalis. This procedure can be made more easy by splitting the hernial sac lengthwise into ribbons way back to the internal ring; then grasping the strips separately and pulling them outward, thus closing the hernial opening completely. Next take each strip separately and wrap around it and its fellows a very thin thread, at about the level of the purse-string suture. Cut off the sac just above this thread and the stump immediately retracts. In order to close the ring more surely, and to absolutely prevent a recurrence, pass a wire suture between the structures of the cord, which has not been disturbed in its bed, including in this suture the fibres of the internal oblique (refraining from injuring the inferior epigastric artery), then through the fascia transversalis in the posterior wall of the inguinal canal, and finally, avoiding the external iliac artery, the suture is attached to the everted Poupart's ligament. After this suture is tied, the inguinal canal is closed tightly, without compressing or injuring the spermatic cord in any way.

Hoffman says that any suture material may be used, although he prefers a medium sized silver wire. With a few sutures the inguinal canal is closed over the cord, although with this method this step is not of so much importance as is the case with other methods. The sewing of the split fascia of the external oblique muscle completes the operation. The normal anatomic relations are regarded and reproduced so far as is possible. The closure of the canal is more complete than with the Bassini operation.

Note: Dr. A. J. Ochsner (Zentralbl. f. Chir., April 2, 1904) points out that this operation is Ferguson's Operation, published four years previous to Hoffman's article, and overlooked by Hoffman.

Surgical Anatomy of Hernia.

R. C. Turck made a careful dissection of the inguinal canal on 50 cadavers at the request of Dr. Alex. Hugh Ferguson and summarizes his conclusions as follows and supports Ferguson's claims: The basis of the operation for the radical cure of inguinal hernia (oblique) should be, first to restore the internal ring to its normal size and position; second, to so suture the internal oblique and transversalis muscles to Poupart's ligament as to give a firm protection to the internal ring. The spermatic cord should

not be disturbed. Dragging it out of its bed and placing it in a new position by suturing the internal oblique muscle beneath it, causes divergence in the internal oblique fibres immediately in front of the internal ring and in reality serves to weaken the muscle in a place where it should be strongest. Fergusons's operation is the only anatomic one.

Jos. Blake dissected 25 subjects with a view to making a careful study of the so-called conjoined tendon and the part it plays in the cure of radical hernia. He found that in no case did the insertion of the lower fibres of the internal oblique and transversalis extend for more than 5-8 of an inch laterally to the insertion of the rectus. In the majority of cases the extent was less than half an inch, and in some it was not appreciable and this insertion was formed almost wholly from the internal oblique. There was uniformly, however, a distinct dorsal wall to the inguinal canal formed of the thickened transversalis fascia, and this is evidently what is referred to as the conjoined tendon. His conclusions are as follows:

1. That what is generally understood to be the conjoined tendon, namely, the insertion of the lower part of the combined aponeurosis of the internal oblique and transversalis muscles laterally to the insertion of the rectus abdominis, seldom exceeds half an inch in width and is often inappreciable.

2. That this insertion consists almost wholly of fibres of the internal oblique muscle.

3. That generally it affords little support to the inguinal canal.

4. That, properly speaking, the conjoined tendon consists of the insertion of a few fibres of the internal oblique and transversalis with that part of the transversalis fascia known as the internal inguinal ligament, and which forms the main part of the dorsal wall of the inguinal canal.

5. These fibres apparently are only occasionally developed and generally found only in muscular subjects.

6. That the term "obliteration of the conjoined tendon" can only be applied to this structure.

7. That the lower fibres of the internal oblique are normally parallel with Poupart's ligament, except just at their origin, where they pass over the cord.

8. That the endeavor in radical cure should be to restore and maintain this parallelism, which is best done by Coley's modification of the Bassini operation.

9. The division of the internal oblique, either through its fibrous transplantation of the cord or as to its insertion by dividing the rectus sheath, is deprecated.

10. That the insertion of the internal oblique laterally to the rectus is of less importance than that to the sheath, so that it may be divided if the sheath is, and by blunt separation of the muscle fibres the cord can be transplanted to an intramuscular position without injury to the fibres or their nerve supply.

11. That we must look to muscular and fascial dimples rather than peritoneal dimples as factors in the causation of hernia.

Conclusion.

A long and valuable article by Dr. Bloodgood, and another by Dr. Halstead must be read to be appreciated. Dr. Halstead has abandoned his former operation in which he transplanted the cord and is now doing my anatomic operation in its principle features, but he still clings to removal of veins in selected cases.

On page 664 "Handbuch der Praktischen Chirurgie" by Bergman, Bruns and Mikulicz, III B. I. T., appears a cut illustrating what is called Girard's Operation, where the internal oblique muscle is sutured to Poupart's ligament and the cord left in its normal position. Girard's publication was carefully looked up by Dr. Eisendrath, of Chicago, and shows that it first appeared November, 1900, in the Archives Provencales de Chirurgie after Dr. Alex. Hugh Ferguson's publication in the Journal A. M. A., July 1, 1899, incorporating these ideas but more completely and read before the American Medical Association at Columbus, Ohio. No doubt another oversight which of course can be readily understood.

Part of the discussion will be found on page 207.

Discussion.

Dr. Alex. Hugh Ferguson: I do not understand Dr. Eckley when he says that this muscle (internal oblique) will atrophy and lose its function when it maintains its normal insertion and is given its normal origin by being sutured to the inner aspect of Poupart's ligament. It is free to relax and contract and neither is its circulation or innervation interferred with and it does not therefore lose its normal function.

In fact, we occasionally take the sartorius muscle and give it another direction and it functionates, and atrophy of it does not take place. We transplant muscles with the very idea of their performing muscular functions to take the place of paralyzed ones. The point that Dr. Eisendrath tried to make in regard to closure of the internal ring I think was not well taken for he must understand that the making of a new internal ring is from the transversalis fascia. I have always maintained that the internal ring must be made as small as possible without injury to the cord. In those cases where the hernial opening extends down to near the pubic bone the transversalis fascia can be sutured in such a manner as to bring the internal ring and root of the cord into their normal position or even higher. The removal of the veins of the cord though carried out by some surgeons should be severely condemned because of the atrophy of the testes that may follow.

Dr. MacArthur: I would like to ask Dr. Ferguson whether he would have any hesitation in curing a varicocele to ligate the veins and yet he would hesitate to do it in performing a hernia.

Dr. Ferguson: The problem in varicocele is very different from that in removing the veins of the cord in hernia. The pampiniform plexus in varicocele lies spread out in the scrotum as a broad, freely anastomosing net work of dilated veins. This net work empties into a few

venous trunks which accompany the cord through the external inguinal ring and up the canal to the internal abdominal ring.

Now removing several dilated branches of the rich plexus in the scrotum has a very different effect from removing any of the few trunks which accompany the cord at its upper portion. In varicocele the dilated veins are removed below the external ring where the collateral branches are many, while in hernia the veins are ablated above the external ring where the collateral branches are few, and those allowed to remain may not suffice for the return flow of the venous blood from the testical and atrophy of that organ ensues in a percentage of cases.

There is no objection, however, in fact it is indicated to carry out the usual surgical treatment (removal of veins) for varicocele, when it complicates a hernia.

CHICAGO LARYNGOLOGICAL AND CLIMATOLOGICAL SOCIETY.

Meeting held May 23, 1904, with the President, Dr. John Edwin Rhodes, in the chair.

Radical Operation in Chronic Suppuration of all Accessory Sinuses at One Side.

By Herman Stolte, M. D., Milwaukee, Wis.

I have the opportunity of demonstrating to you the final result of an operated case of very chronic extensive suppuration of all accessory sinuses on the left side. In this case, a perfect cure was obtained in a relative short time of 2½ months, by performance of the Luc-Caldwell antrum operation and on the other hand of the Killian radical operation of the frontal sinus done in one narcosis. The history of the disease is briefly this: The suppuration had started obviously from the antrum Highmori very likely from a decayed tooth, which had been filled eight years ago. Since that time the patient suffered from toothache and dull pain in the left upper jaw, which oft times swelled up. Two years later, about six years from the present time, by a severe attack of influenza, the process spread from there to the other sinuses. Owing to the peculiar narrow anatomical conditions in this nose, the patient suffered since that time constantly from perfect obstruction of the nose, from purulent discharge, a kind of dull headache, general nervousness and sometimes from slight degree of mental depression accompanied by a high degree of anaemia.

Polypi, as the supposed cause of the molesting obstruction and discharge, were removed several times by other specialists, but the grave symptoms naturally persisted. When the patient came under my care in December of last year, I found a complete obstruction of the left nose by a rather extensive deflection of the septum and a big crista prominent from the latter. The remaining small space was filled out with enormous polypi from between which abundant fetid pus emanated down. The turbinated bones were not to be seen. Transillumination showed striking darkness of the antrum, and slightly marked darkness of the frontal sinus, the subjective light shine of the left eye being much diminished. So it was proven that at least a chronic empyema of the antrum existed, very likely with necrosis of bone according to the character of the pus. By several preliminary operations under the cocain: extensive removal of the big crista, extraction of the polypi and removal of two-thirds of the highly swollen degenerated middle turbinated bone—a good view of the diseased area inside of the nose was obtained, and after using all examination methods it was obvious that there was not only an empyema of the antrum, but also of all other sinuses; the antrum alone discharging fetid pus owing to the necrosis of bone. I did not attempt to influence the antrum suppuration by smaller surgical interferences, as I was convinced of the fruitlessness of these steps according to the supposed presence of necrotic bone and the duration of the disease. After syringing the frontal sinus for some time, (which was very difficult owing to the high degree of the deflection of the septum.) I found there was absolutely no improvement in the condition of the frontal sinus. As to a proposed curettage of the diseased ethmoidal and sphenoidal cells the patient, whose nervous condition was very bad, declined decidedly any further operation inside the nose by cocaine. So I had to propose one extensive radical operation of all sinuses in one narcosis. At first the Luc-Caldwell operation of the antrum Highmori was performed. The first step after having clogged the left choana with a sponge was to remove two-thirds of the inferior turbinated bone. Then the external wall of the upper jaw was removed sub-mucuously to the foramen infraorbitale and to such extent, that one had a very free view into the cavity. In the antrum I found a good sized round shaped sequester one inch in diameter, the cause of the horrid mentioned odor, and the cavity filled out with big masses of myxomatous granulation tissue. After completely curetting out the granulation masses and the very much degenerated lining membrane, the bony nasal wall of the antrum was removed. Interiorly to the junction with the external wall, posteriorly to two-thirds of the turbinated bone, inferiorly to the floor of the antrum, superiorly to the ethmoidal cells. The formation of mucuous membrane flaps out of mucuous membrane of the inferior turbinated bone for grafting the new cavity, as suggested by Jansen and later by Behrens, of New York, was not attempted because I do not think this process will shorten the healing in any marked extent. The oral wound was not closed, in order to avoid following periostitis and to control the cavity for a few days. After eight days the wound was closed by external tampon pressure. Then I proceeded with the Killian operation. The first incision through the skin begins on the outer end of the eyebrow, runs through the middle of the whole length of the same and turns on the inner end of the brow downward in a nice curved arch-shaped line to the middle of the frontal process of the upper jaw through the musculus quadratus labii superioris

outward and downward, ending one centimeter below the level of the nasal bone. This incision is followed by an abundant bleeding, the stoppage of which is very difficult and tiresome because the periosteum is not to be divided and cannot be pushed aside. Then follows the upper periostal cut along the supraorbital ridge from five to six millimeter above it. The cut ends between the upper end of both nasal bones. The following lower periostal cut is made to outline the lower edge of the bony bridge, to be formed out of the supraorbital ridge. This cut follows exactly the supraorbital ridge and ends in the former skin incision in the middle of the frontal process of the upper jaw. Above the inner end of the upper periostal incision a small disk of bone is preliminarily removed by chisel or drill, after having pushed the periosteum upwards to explore the contents and extent of the frontal sinus. After finding out the upper limit of the frontal sinus by use of a probe the periosteum is pushed upwards to the same height and then after formation of a slight groove with chisel following the superior periostal cut, the anterior wall is broken away by Stille's forceps. Great care must be exercised to smooth off all the cut-edges of the opening by means of bur or chisel so that there may be no rough prominences which may irritate the later superimposed skin. Further in the frontal cavity all septa are to be removed with bone forceps and especially the posterior surface of the bone bridge is smoothed off. The degenerated lining membrane and all granulation are curetted especial care being taken to include all temporal orbital niches. Now using the chisel close behind the supraorbital bridge I broke through the floor of the frontal sinus forming a little hole. From this proceeding one removes the floor close behind the bone bridge as far as possible with Hartman's thin curved bone forceps. Now the periosteum in the lower skin-periosteal cut is pushed aside inwards to the edge of the nasal bone outwards to the infra orbital edge, lachrymal sack and orbital roof. Here we must take care not to peel off the periosteum outward beyond the supraorbital nerve which is not necessary if we succeeded in removing all the floor of the frontal sinus from above. The lachrymal sack is replaced to its outer insertion. On the lower end of the cut the frontal process is broken off by means of Stille's forceps, preserving the nasal mucus membrane. Towards the lachrymal bone and from there inwards and upwards one has to use a chisel as the bone plate here is very thick and compact. So removing the orbital wall one again comes into the before partly broken off floor of the frontal sinus and is now able to remove it thoroughly with all its orbital and temporal niches of ethmoidal cells. The lachrymal bone is preserved as much as possible, especially in its outer part. Great care must be exercised in removing the orbital roof, that is the floor of the frontal sinus, especially on the lower edge of the bone bridge, (supraorbital ridge) in order to preserve the tendineous insertion of the trochlea (holding the obliquus muscle), radiating partly to that mentioned bone ridge. When we preserve this supporting point, as we have mostly to detach the trochlea itself, we don't get double vision by inactivity of the superior oblique muscle. In my case the trochlea was detached downwards by pushing away the periosteum, but the above mentioned supporting fibers, inserting the supraorbital ridge, were preserved. The patient had afterwards no sign of double vision. The trochlea is situated half a centimeter from the supraorbital foramen and is sometimes not to be touched at all if we succeeded before in removing the floor of the frontal sinus to its greatest extent from above in the first steps of the operation. Now the undamaged nasal membrane is detached making a longitudinal incision along the nasal bone. Here we are confronted by the so called frontal cells of the anterior ethmoidal cells surrounding the frontal duct. (These are carefully removed in the same way after nipping away the middle turbinated bone, if this is not removed before). We clean out all the now freely exposed ethmoidal cells with Hartman's cutting forceps and with curette. In my case it was also necessary to open the sphenoidal sinus as it was also diseased and freely discharged pus. Then after stopping thoroughly the bleeding by swabbing with hydrogen dioxide and temporary iodoform gauze tamponade in the region of the ethmoidal cells a perforated rubber drainage tube is inserted reaching from the temporal angle of the wound, to the nasal floor. Free drainage is thus guaranteed. Then the external wound is very carefully closed with celluloid thread which does not favor stitch suppuration. Before and after operation atropin is put in the eyes to prevent irritation of the iris. The dressing is made with moist boric acid gauze and is changed daily. The thread is removed on the sixth day, the frontal sinus is not syringed out, only the funnel leading to the frontal cavity oft times being brushed with two per cent nitrate of silver or Argyrol.

Here you see the final result of the operation. Outside you see there is not any disfiguration at all above the supraorbital ridge which as bridge supports the whole skin flap. You do not see any sinking in of the anterior wall or any depression neither here or below the bone bridge in the orbital wall, this and the frontal process being regenerated out of the periosteum. You cannot see a scar excepting a fine white line in the inner angle of the eye. The cosmetic result cannot be better. Inside all is healed up and you have no secretion, the antrum Highmori being obliterated to the half of its former size, the inner surface being outlined with healthy mucuous membrane.

Discussion.

Dr. John Edwin Rhodes: I would like to ask the doctor whether there was an injury of the supraorbital nerve, and if so, what was the effect. Also what steps are taken to prevent such injury.

(1). To the question of Dr. Rhodes. Is it possible to preserve the supraorbital nerve?

One can isolate it and push it out of the field of operation, but this manouvre requires the undivided attention of an assistant and in-

creases the difficulty of the operation to a considerable degree. In my case the nerve was cut through and the patient suffered afterward from a certain degree of numbness in the superior orbital region.

(2). To the question of Dr. Gradle. How to form the mucous membrane of the nose as Killian advised. I too like most readers of Killian's work do not understand his description of formation of the flap. I personally made a longitudinal incision along its internal edge and continued the incision a little backwards along the nasal roof and pushed the detached flap outwards in the region of the removed ethmoidal cells.

(3). To the question of Dr. Casselberry. Does not the detachment of the trochlea produce double vision? As I said before in some cases the whole trochlea may be preserved when one succeeded in breaking down the whole floor of the frontal sinus from above. In this case, removing the periosteum from the orbital wall outwards from the foramen supraorbitale, we don't need to detach the trochlea at all. If we had difficulty in removing the whole floor of the frontal sinus from above, we are forced to detach the trochlea down and outwards together with the periosteum, but we have to take great care to preserve its tendineous insertion on the supraorbital ridge. So we seldom get double vision afterwards because the supraorbital muscle is supported by these preserved fibres.

Dr. G. Morgenthau: I wish the doctor would tell us something about the formation of the flap advocated by Killian which aids so much in the healing.

Dr. Stolte: Killian's description of the formation of the flap is not accurate. I think it must be a typographical error, because I had considerable trouble to study out just what he meant. It is a very simple matter to make the flap. In my case I made a longitudinal incision along the external edge at the nasal bone; above on the lamina cribrosa I continued the incision half an inch backwards and turned then the flap outwards towards the region of the removed ethmoidal cells, covering this area and fixing the flap afterwards by the drainage tube and strip of gauze.

Dr. Casselberry: Although the essayist in an informal way described the care that should be taken of the superior oblique muscles of the eye, I did not understand him. Some oculists tell us that an injury of this muscle has resulted in an obliquity of the orb. I wish the doctor would give us some information on that point.

Dr. Casselberry: You think that it is necessary to detach the bulk of the muscle, leaving it attached by only a few fibres.

Dr. Stolte: In most cases, as I described them before, yes.

Dr. Gradle: I have never done Killian's operation, but I believe I can see what is done. The muscle is spared by its insertion into the periosteum; so that if the periosteum retains its position in part, a part of the muscle is spared. Quite a number of Dr. Coley's (?) cases had double sight, although they all recovered, if I remember correctly.

Dr. Beck: Dr. Faith operated a case of this kind by the Killian method, and he got squint following the operation. By a second operation he fastened the trochlea to its original position and the result was very satisfactory. I saw the case after both operations, three weeks elapsed between the two, and I believe such a thing can be done. There was a great deal of scarification.

Dr. Casselberry: I did not understand whether Dr. Stolte got double vision in his case.

Dr. Stolte: No, I operated two cases till now, but I never got double vision.

Dr. J. Holinger: In the last issue of the Archiv fuer Laryngologie, Siebenmann speaks about an operation I saw him do for double side of the frontal sinus. He connects both cuts over the bridge of the nose to form an "H," removes the support of the glabella and pushes the whole glabella backward so that the cavity of the frontal sinus is reduced to about one-third its original size. He often removes the trochlea. I asked him about the consequence of this, and he told me that the trochlea always finds a place for anchorage and that after two weeks all the symptoms passed, unless you injure the muscle and the tendon.

Presentation of Cases Operated Upon for Deflected Septi.

Dr. C. M. Robertson: I am preparing for publication a paper on this subject and had not intended to say anything at this time until requested to do so by the secretary. My cases were not all true Gleason operations. In one there was a large echondrosis which was sawed off. In nearly all the cases there was hypertrophy on crest of the deflection. I did not pay attention to the mucous membrane. If the hypertrophied crest was in the way I sawed it off and let it heal over with new tissue.

In Gleason operations on the septum the cause of failure nearly always is because the posterior flap is not extensive enough. In two cases the result was nil on this account. Both cases refused to allow me to finish the posterior flap. The feature I like about this operation is that the nostril does not have to be kept packed into position like in the Ash operation, or the operation of dissecting out the cartilage, and it requires but a few moments to perform. In one of the cases the nose was packed for only two days, and another for four days; the longest for a week. No tube was used, except in one case. Here the tube was retained for two days, when it was taken out because it irritated the mucous membrane.

In sawing on a bevel and push the cartilaginous flap through a buttonhole, the bevel makes a piece larger than the hole, so that when it is in the new position it remains; a distinct advantage. You will notice that one can hardly detect where the saw incision was made; it does not leave much scar, and in some cases it is almost impossible to tell that any

surgical interference was carried out. No scab forms. The nostrils are patulous.

Dr. Gradle: I would like to ask Dr. Robertson about a few details of his operation.

Dr. Casselberry: Before Dr. Robertson replies, I would like to ask him whether he can briefly sketch the particular conformations of the septum that he judges suitable for the Gleason operation.

Dr. Robertson: The Gleason is not an operation for all kinds of deflections. In one of the cases there was a deflection in which there was a large cleft. In that case exsection of the cartilage would have been suitable. In another case there was a simple angular deflection, with the septum of the same thickness throughout its extent. The third case had a sigmoid deflection the upper bend about opposite the middle turbinal, and the lower ran out in an echondrosis. This was first sawed off in order to get a septum of about the same thickness, and then the Gleason operation was performed.

When the deflection extends back onto the vomer the posterior flap must be higher than in the other cases. The higher the better. The posterior flap must come around like this, (illustrating) and the top of the flap should not be too broad or stop short of the top of the deflection.

As to the technique of the operation: The nostril is made as patulous as possible, by removing parts of enlarged turbinals, before the operation is begun. When a turbinal is hypertrophied on the inner surface, it is trimmed. These cases are exactly as they were after the operation was completed. Nothing has been done since then. I spray the nostril clean, and then apply alternately cocain and adrenalin. In some of these cases I myself cannot tell where the scar is.

(Talk was interspersed by blackboard diagrams illustrating the steps of the operation).

Dr. A. M. Corwin presented a fibrinous cast of the trachea, and bronchi reaching the fifth and sixth divisions of the bronchial tree. These casts are relatively rare, but are illustrative of the complications we may see even in seemingly favorable cases of laryngeal obstruction.

The patient, a well nourished girl, aged 18 months, had been ailing for about a week. I saw the child in consultation twenty-four hours after the severe laryngeal trouble began to develop. There was no profound depression, such as we see in diphtheria; no angina; no involvement of the lymph glands; simply hoarseness, increasing a little each day, until yesterday afternoon when there was imminent asphyxiation from laryngeal stenosis. I performed intubation immediately with prompt relief. At three o'clock this morning twelve hours after introducing the tube was becoming stopped up, I removed it and found it partially filled with some of this fibrinous material. As the breathing was not relieved, the tube was replaced. The breathing improved for about one minute, when there came on strangling and vomiting, which expelled the tube and with it the cast exhibited. This relieved nearly all the laryngeal symptoms. Breathing was free and the tube did not have to be replaced the larynx remaining free to the end. However breathing was very rapid and difficult, evidently from pulmonary involvement.

The lower portions of the chest were dull, and the respiratory murmur over these areas feeble, with numerous fine rales. The temperature was elevated having risen from 99⅕° to 103° during the few hours preceding; the pulse was good throughout the attack and the cardiac sounds and action normal only failing with the membranous extension into the smaller tubes—a fibrino-capillary bronchitis—which terminated with the child's death this a. m. at ten o'clock, nineteen hours after the introduction of the tube which entirely relieved the breathing for about six or eight hours. After this the pulmonary involvement seemed to develop very rapidly. I would further state that antitoxin was administered some 48 hours before death this symptom of diphtheria was not at all suspected, but in order to give the child the benefit of the doubt. Bacteriologic examination was negative. Two other young children in the family had been in and out of the room with the patient but have shown no evidence of illness.

Dr. O. T. Freer: Dr. Robertson's results are very good. The Gleason operation is efficacious for deflections having a shape and thickness suited to it; like all fracturing operations however, it is not an absolutely certain procedure. Gleason prefers to have bone in the neck of his flap as its fracture assures the success of the operation while a cartilaginous neck is too elastic to break in many cases. The great variations in the thickness and strength of the perpendicular ethmoidal plate seem to me also to make its fracture by the finger not a result to be counted on. Dr. Robertson has referred to the uncertainty in cutting the posterior crus of the "U" properly. Nevertheless the Gleason operation is the best of the fracturing operations and Dr. Robertson's results in the cases he has shown are excellent.

Presentation of Cases.

By J. Holinger, M. D., Chicago.

Case I. Mr. M., 45 years of age, complained that his left nostril had been stopped up completely for seven years. During that time there was only a slight discharge and no constitutional symptoms, especially, no headache. Five years ago, and again two years later, polypi were removed from the nose. They were very large and considerable hemorrhage followed their removal, but not so much as at subsequent operations. Since last fall he has been troubled a great deal with epistaxis, often coming on without any apparent cause. During the past three months there has been a very profuse, thick, yellow discharge, of fetid odor, from that nostril, necessitating the use of six or seven handkerchiefs a day.

An examination made April 7th, revealed the following: The right nostril was patulous and free from any tumor. The left nostril was filled up to the vestibulum by a bluish-gray, soft, non-transparent tumor. The turbinals were invisible. An attempt was made to circumvent the tumor, but a very profuse hem-

orrhage resulted, necessitating tamponade. This led me to suspect that the tumor was a sarcoma. I excised a small piece, which, on microscopic examination, was pronounced by Dr. Wm. A. Evans to be malignant. At his request a larger piece was removed a few days afterward, and this, too, was pronounced malignant. When I removed this last piece I anticipated a profuse hemorrhage, but before we could tampon the nostril with gauze, which was held in readiness by the assistant, the patient lost 150 c.c. of blood.

Being unable to determine the exact origin of the tumor, I deemed it advisable to examine the main sinuses. I opened the frontal sinus, making an incision as advised by Killian for his radical sinus operation. Passing through the anterior ethmoidal cells into the depth of the nose, I examined the maxillary sinus and removed the greater portion of the tumor from the upper posterior part of the septum. The turbinals hardly could be felt because of pressure atrophy. The hemorrhage was profuse from the moment I entered the nose through the ethmoidal cells, but was well controlled by packing with gauze saturated with compound tincture of benzoin, a favorite method of Prof. N. Senn. The naso-pharynx was packed from behind.

The packing was removed on the third day after the operation, and the patient returned to work on the fourteenth day.

I show you this patient for two reasons. First, because I want to call your attention to the fact that the Killian incision gives us easy access to all the accessory cavities of the nose. Second, because the duration of the healing was only two weeks.

Case II. Mr. G., aged 16, had scarlet fever when two years old. For the past six years he has had a discharge from his right ear, and at times dizziness, headache and deafness. The left ear is normal. I examined his ear on March 22d, and found that the tympanum was absent and the handle of the malleus without support. The upper posterior portion of the meatus nearest the annulus is missing. Granulations were seen on the promontory near the niche of the round window. Air does not pass through the eustachian tube, no noise of perforation was to be heard, but at the place of the opening of the tube, on a level of the promontory, a new membrane is seen to bulge, when Politzer's test is applied.

The discharge was very fetid. The ear was cleaned daily, and sometimes there was no discharge for several days. After the middle of April the fetid discharge and dizziness reappeared. I operated on April 29th. The posterior wall of the meatus was removed, as was also the lateral wall of the aditus and the antrum. The pars epitympanica, together with the malleus and the incus, were left **in situ.** The antrum had been transformed into a large cavity lined with epidermis and filled with cholesteatomatous masses. The flaps of the meatus were fixed in the upper and lower angles of the external wound with buried sutures. A "Y"-shaped incision was made in the concha. The lining of the cholesteatoma cavity was left undisturbed. The wound behind the ear was closed, and the remainder packed with iodoform gauze. Recovery was speedy and uneventful.

On May 4th, the dressing was changed and the sutures removed. May 7th, I used silver salve and after May 9th, I applied vioform but no dressing. The granulations on the wall disappeared in due course of time without special treatment.

Discussion of Dr. Holinger's Cases.

Dr. Jos. C. Beck: I would like to call your attention to the fact that by pushing against the granulations on the inner wall the patient felt dizzy, and that the patient also was quite deaf. Those are two characteristic symptoms of labyrinthian disease, although his operative procedures did not throw any light on that point. He left it alone. If it was, the patient would not be so well now.

We ought to have a clearer picture of this labyrinthian necrosis. I was particularly interested in this case because the literature, at present, is full of the subject of labyrinthian necrosis and the operative procedure to be followed.

In regard to leaving the cholesteatomatous matrix, I can say from my own experience that I left it **in situ** in one case. I have seen the case from time to time and there has not been any recurrence of the cholesteatoma, no discharge or fetor in the mastoid region, after two years, and yet it is always exposed to the air through the external auditory meatus.

Dr. Holinger, (closing the discussion): I know that Laufal, and others, have made it a point to scrape and burn and do other things with the cholesteatoma matrix, but what can they put in its place? What is the cholesteatoma matrix? It is the epidermis which has covered a granulating surface. It is a scar with a bony base. There is nothing to be found in the cholesteatoma matrix, either macroscopically nor microscopically, to differentiate it from a scar; therefore, as long as you have nothing else or better to put in its place, why not leave it? In our case the cells have proved their vitality by covering the granulating surface. Be careful that no retentions are possible.

As to the diagnosis of labyrinthian disease: I did not nor could I make the tuning fork tests, because the other ear could not be excluded. But because of the granulations on the wall of the labyrinth, I did not see what else it could be called, except an ulcerative process of the wall of the labyrinth. The extreme dizziness spontaneous and on touching of these spots, as well as the deafness are characteristic. I would not be surprised if the ear, after a while, recovered some of its hearing power.

Radical Operation for Suppurative Antrum.

Case Exhibited by Dr. Jos. C. Beck.

Dr. Beck: Dr. K. has for two years been suffering from suppuration of the antrum of Highmore. He came to me a year ago with a tube slipped into the antrum, causing marked

edema of cheek and much pain. I removed it with a sharpened, curved, hooked probe. I recommended a radical operation, the Caldwell-Luc, which I did last December. I did not open the lateral wall of the nose from the antrum, but from the nasal side, after removing more than two-thirds of the inferior turbinated body.

First, I made a large opening through the canine fossa, exploring the sinus thoroughly, curetting and packing it, and putting in temporary drainage, passing the gauze through the opening in the nose and out through the inferior meatus. I used the compound tincture of benzoin and wish to recommend it highly as an intranasal dressing. The external opening was allowed to close without much interference.

The most distressing symptom that called for operation in this case was a severe gastritis, which interfered with the patient's well-being. There was a foul discharge, which could not be controlled. Irrigations with a ten per cent solution of argyrol were continued by the doctor himself after opened. He has just recovered from an attack of lobar pneumonia during which time the irrigations were discontinued, and after his recovery he found only a little mucus secretion.

I examined him a few days ago and found that the opening in the nose was much reduced in size, just admitting an irrigating tube. There are no signs of other involvement, and the result is very gratifying. The disease was of dental origin.

Discussion of Dr. Beck's Case.

Dr. W. E. Casselberry: Was the turbinectomy done preceding the opening into the canine fossa and under general anesthesia, or did it antedate the general operation? I also question whether it is proper to describe this as a Caldwell-Luc operation. Luc closed the external wound. He made an opening through the inferior meatus of the nose for drainage and medication, but he closed the wound in the mouth. The operation the doctor described antedates the Caldwell-Luc operation.

Dr. Beck, (closing the discussion): This is not the Caldwell-Luc operation, but is like it. The external wound was left open. The operation was performed in one sitting under complete anesthesia, doing the turbinectomy first, then plugging the nostril with gauze, then making the large opening through the canine fossa, curetting and packing. The gauze was removed from the nares and I opened from there into the antrum.

This patient was operated by Dr. Gilmer, and if he did this operation before Caldwell-Luc, I do not see why he did not do it in this instance. I believe, Dr. Casselberry did the primary puncture through the inferior meatus.

IMPORTANT NOTICE.

Ottawa, Ill., July 28, 1904.

To the Editor:

In the official proceedings of the House of Delegates as published in the last minutes an error crept in relative to the composition of the Committee on Medical Defense. The Committee should read Drs. W. A. Evans, H. N. Moyer, G. N. Kreider, E. J. Brown and H. C. Mitchell.

E. W. WEIS, Secretary.

The Illinois Medical Journal.

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Copy for advertisements must reach the editor's office by the 20th of the month in order to secure insertion.

PUBLISHER'S NOTES.

The Journal is not responsible for any medical or therapeutical views expressed in this department.

The Treatment of Summer Diarrhea.

In the treatment of any form of diarrhea an accurate diagnosis must first be made. For convenience it is customary to classify diarrheas somewhat after this fashion: 1. Diarrhea of relaxation, or serous diarrhea, due to disordered innervation; 2. Crapulous or lienteric diarrhea, due to imperfect digestion; 3. Catarrhal diarrhea, acute or chronic; and 4. Ulcerative diarrhea, due to intestinal ulceration.

This classification is by no means perfect as is shown by the multiplicity of terms applied to the various pathologic states characterized by diarrhea. Thus we have the terms acute inflammatory diarrhea, acute summer diarrhea, choleraic diarrhea, dysenteric diarrhea, nevous diarrhea, tuberculous diarrhea, etc. In each case the diagnosis is determined by the actual condition prevailing, of which the intestinal laxity is usually but a prominent symptom.

The question of treatment is one of the utmost importance. Without entering into a discussion of what soon proves to be a very broad subject, it may be worth our while to consider briefly the status of the antiseptic method of treating intestinal disorders, especially those caused by pathologic organisms and of which diarrhea is the chief symptom. Apart from well-directed efforts to clear the intestine of bacteria, reduce the temperature, sustain the vitality of the patient, regulate the diet, secure proper hygienic conditions, rest, and good care, the selection of the proper antiseptic agent demands the exercise of the physician's best judgment.

Whether or not it be possible to attain intestinal asepsis is of course a debatable question, but it is a well-established clinical fact that intestinal antiseptics do good and modify the course of enteric diseases of bacterial origin, notably typhoid fever, dysentery and summer diarrhea. However, there is a difference in the degree of efficiency of the various antiseptics, the utility of many being limited by the risk of untoward action from excessive dosage. In those cases of ileo-colitis caused by the bacillus of Shiga many of the serious symptoms are due to a mixed infection, to combat which prompt and vigorous measures are required.

The experiments of Novy and Freer (**Contributions to Medical Research,** p. 114) with benzoyl-acetyl-peroxide (Acetozone) showed that this substance is extremely germicidal to the organisms found in the alimentary canal. Its administration to rabbits resulted in the "practical sterilization of the contents of the stomach." In several experiments with these animals "the intestinal tract apart from the cecal pouch, was found to be sterile." Neither bouillon tubes nor agar showed growths, though the controls gave abundant cultures. Other experiments showed that enzymes and toxins are also destroyed or rendered inert by Acetozone. Further study demonstrated not only the remarkable germicidal power of Acetozone, but also the fact that its aqueous solutions may be given internally, and even injected intravenously, without harm. From these data we infer that this substance ranks among the most powerful germicidal agents, while it exerts no harmful effect upon the human organism, and may, therefore, be employed as a therapeutic agent in the treatment of summer diarrhea and other infectious enteric diseases with the best effect. There seems to be abundant evidence to warrant the suggestion that Acetozone solution should prove most valuable in colonic flushing, as it is entirely free from the danger that attends the use of large quantities of even weak solution of mercuric chloride, and for that reason may be used fearlessly.

A Youthful Gonorrheic.—Dr. Nelson W. Wilson, of Buffalo, N. Y., reports an interesting case of gonorrhea in a boy of nine years. The patient was received at the hospital in considerable pain because of inability to urinate. The bladder was greatly distended and the patient said he had not urinated for about fourteen hours. Examination showed the penis edematous, swollen and phymotic, and the presence of a large quantity of suspicious looking pus, which showed the presence of gonoccoci. As the condition required immediate attention the phimosis was cut and a catheter inserted into the bladder. A large quantity of cloudy urine was withdrawn and the bladder washed with a permanganate solution, 1-8000. He was put on urotropin, .195, g. three times a day, catheterized every six hours and the permanganate solution was continued. During the next three days his temperature rose to the neighborhood of 105° and he could not urinate voluntarily. On the fourth day he was put on uriseptin and urotropin discontinued. The next day he urinated voluntarily but with some pain. Treatment now consisted of washing the bladder with the permanganate solution, uriseptin internally and keeping the bowels open with salines. Recovery followed in six weeks.

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